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ABSTRACT

This report evaluates the second year of the Title III project in which one full-time paraprofessional was provided for each six professional members of the instructional staffs in one junior high and two elementary schools. The main sections contain description of (1) the use of teacher logs and teacher aide logs to determine the direct cost to utility ratio for aides and to determine whether the aide affected the activities of the teacher, (2) efforts to validate the 60-item Teacher Aide Attitude Inventory (TAAI) developed for use in the project, (3) use of the Minnesota Teacher Attitude Inventory (MTAI) to determine if teachers utilized aides to improve their own rapport with children, (4) design and use of the Teacher Activity Instrument (TAI) to measure change in the amount of time teachers spent carrying out certain tasks and change in teacher perceptions regarding uses of aides, (5) use of the Purdue Teacher Opinionaire (PTO) to measure teacher morale as it related to the availability of aides, (6) development and use of the 20-item Teacher Aide Evaluation (TAE) scale used by teachers to assess the aides with whom they worked, (7) use of all data to determine what combination of variables might best predict which teachers would use aides in a meaningful manner and which aides would be expected to achieve the highest ratings, and (8) a semantic differential study of all students in seven grades to analyze possible affective domain changes resulting from the presence of aides. (JS)

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EVALUATION REPORT

Prepared for

Director

Division of Plans and Supplementary Center
Office of Education
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and

The School Board
Dr. Wayne Worner, Superintendent of Schools
Grand Forks, North Dakota

for the

1968-69 Project Year

by the

Evaluation Subcontractor

The Bureau of Educational Research and Services
The University of North Dakota
Grand Forks, North Dakota

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J. A. Thompson
Acting Director
BERS

SECTION A

INTRODUCTION

Objectives

This report is the second in a series of three yearly reports which are to be issued to evaluate the various aspects of the Grand Forks Title III Project entitled, "Implementation of the Teacher and His Staff Concept." The second year report covers the research activities for the school year 1968-69, and complements the initial report, which dealt with 1967-68.

The evaluation objectives during the initial year dealt primarily with ascertaining statistical differences between a control population of three schools and an experimental population of the same number. The first report found that there were differences in several aspects concerned with the use of aides in the classroom between the control and the experimental groups.

The second year evaluation objectives focused on the experimental group only and used them as their own control. One objective was to determine if change was linear, or whether once change had occurred, there was little or any further change. In that framework, several of the inventories developed for evaluation of the project during the initial year were revised, and a further administration of each was made in the spring of 1969.

A second objective attempted was to standardize an aide inventory so that it would have utilization by other teacher aide projects throughout the United States.

Two exploratory efforts were made: one, a project to determine the cost utility of aides in the project; the other to gain insight about the way students perceived their teacher aides. Each has potential to supply valuable information as well as measurement techniques which could be generalized to other projects.

A final objective was an effort to seek out predictors which would have value in determining persons likely to become satisfactory aides.

Limitations of the Evaluation

The conclusions from this study are limited because of mortality rate of nearly twenty percent between the 1968 and 1969 administrations. While this rate is not excessively high for studies which deal with faculties in public schools, it does raise some implications of bias.

The section dealing with the predictors for aides is subject to a rather small N.

The same limitations cited in the 1968 report, that the Grand Forks district may be atypical of districts in North Dakota, still apply.

Overall Project Procedures

The following procedures were utilized:

The project proposal identified three schools, two elementary and one junior high, to serve as experimental schools. Within these schools, the following modifications were made which form the experimental treatment studies through the evaluation outlined in this report:

✓ 1. One full-time paraprofessional (teacher aide) was provided for each six professional members of the instructional staff. In addition, volunteers and part-time workers in NYC and Work Study were utilized in various capacities. A full-time administrative director was appointed to coordinate the program within the three experimental schools.

2. The present school staff and resource personnel were involved to a greater extent with this project through utilization of every available media of communication.
3. Additional teaching materials and equipment were made available in the experimental schools.
4. Teachers in experimental schools were also provided the opportunity for intra-district visitations of other teachers.

Description of the Population Studies

The population in the current report consisted of three experimental schools: South Junior High, Carl Ben Eielson Elementary School, and J. Nelson Kelly Elementary School.

The report from 1968 found substantial differences between the control and experimental schools; therefore, the control schools cited in the previous report do not appear in the current evaluation. In the present report, the experimental population is controlled against itself.

Description of the Data Collection Procedures

One administration of several of the instruments used in the first year was made on April 28, 1969, to all experimental teachers. Suspicions of bias were raised about the spring administration in 1968 because the teachers were required to respond to the instruments in an after-school-hour situation. In spring, 1969, this bias was eliminated as the schools were dismissed early, and the teachers responded during school hours.

Four instruments were administered to the participating teachers: the Minnesota Teacher Attitude Inventory (MTAI); the Purdue Teacher Opinionnaire (PTO); the Teacher Aide Attitude Inventory, revised edition (TAAI); and the Teacher Activity Instrument (TAI).

New teachers had also responded to the instruments during the pre-school workshop on August 28, 1968.

The Sematic Differential was pilot tested on April 11, 1969, and the final administration was made to all children in seven grades on April 25, 1969.

The Teacher Aide Logs were filled in during the week of May 5 to 9.

The Sematic Differential and the Purdue Teacher Opinionnaire were both new in 1968-69, as were the Teacher Aide Logs and the Teacher Logs. The TAAI was revised after collecting an additional pool of items from the principals involved in the project.

Statistical Procedures

All data were transferred to optical scanner sheets and then punched on standard punch cards by an IBM 1230 optical scanner. The following statistical procedures were employed to analyze the data: Spearman Rank Correlation, Student "t", Sheffee "S" test, Analysis of Variance, Analysis of Covariance, Factor Analysis, and the Stepwise Regression.

Spearman Rank Correlation was utilized to indicate whether rankings on the Teacher Activity Instrument were comparable between different administrations of the instrument. The Spearman coefficient is also advantageous in that it is linearly related to the coefficient of concordance according to Siegel (1956). Tied ranks were handled in accordance with the recommendations given in Siegel.

Student "t" was utilized with the interaction analysis data to test whether change from pre-test to post-test occurred for each of the ten categories measured by this procedure. A non-related statistic was used when comparing differences between two groups while a related statistic was used to measure change over two test administrations for the same group.

The purpose of Factor Analysis (the centroid method was the form used) was to reduce the many items on each measurement device to one or more combinations of items, i.e., factors. Scores were derived for each factor by assigning numerical values to the response choices. After having several judges identify the most acceptable response for each item, the response choices were reversed whenever necessary so that all items were scored in the same direction, i.e., most positive response given the highest numerical value. Finally, a percentage score, indicating what percent of the maximum possible positive responses a respondent checked, was derived for each factor and/or the total score on each instrument.

Analysis of Covariance was the main statistical technique applied to the data in this study. The purpose of this technique was to identify change which occurred from pre- to post-test administration of the instruments. Since pre-test information was intended to serve only for baseline purposes and was gathered from all teachers in the control and experimental schools, i.e., the total populations, analysis of covariance was an ideal approach to adjust for any population differences in the pre-test baseline data.

Sheffee "S" Test was applied to each pair of means whenever a significant analysis of covariance value occurred. The purpose of the Sheffee Test was to identify which pairs of treatments were contributing most of the variance to the significant covariance test.

Analysis of Variance was utilized to test some measures over time for the same group or between different groups. Both one- and two-way ANOVA tests were utilized. The computer programs utilized had adjustments for unequal numbers in the cells. Analysis of Variance was also derived from the computer programs for covariance. It provided a test of the unadjusted post-test results for each problem on which covariance value provided evidence concerning the relationship existing between the pre- and post-test data. For example, if the covariance value was significant, but analysis of variance was not, then it could be interpreted that, while the post-test means differed very little, the pre-test means differed considerably, causing the adjusted post-test means to also differ.

Stepwise Regression.This statistical technique is simply a particular usage of the general multiple linear regression technique. Two types of stepwise regressions are quite often employed. A forward stepwise regression begins by using the simple best predictor of the criterion. The second step uses that predictor which in combination with the original predictor accounts for the largest possible variance. The third and subsequent steps will be similar to the second step, except that the particular stage will have as many predictors as there are steps. The stepwise background program is described by Draper and Smith in *Applied Linear Regression*, 1966, Wiley, and is called the backward elimination procedure by the authors. The first step in the backward stepwise regression included all *n* predictor variables. The second step will eliminate that variable which contributes the *least* to the predictor set. All subsequent steps are similar to the second step. It is important to recognize that the results from a stepwise regression do not have similar interpretations, even when one takes into account the direction (forward or backward).

Level of Significance. In all statistical testing, the 0.05 level of significance was utilized to identify significant differences. In many cases, when the calculated value approached the 0.05 level, the 0.10 level was utilized for supplementary information. The intent of this appraoch was to identify trends which provided evidence which the practitioner might use to make a decision regarding the use of teacher aides in the classroom.

SECTION B

OVERVIEW OF THE TEACHER AND AIDE STUDIES

The following sections, C through J, are reports of the findings from the studies which dealt with the interactions between the teachers and the aides. Sections C, G, H and I are new investigations which began in the second evaluation year. Section C and I were primarily designed to test hypotheses relative to cost/utility ratio of aides, and to attempt to use these data to develop predictors of teacher usage and aide rating. Section G was an attempt to incorporate a new standardized teacher opinionaire to measure aspects of teacher attitudes which aides might affect. Section H dealt with analysis of the Teacher Aide Evaluation instrument. The balance of the sections are continuation reports of studies begun during the first year of the evaluation, but analyzed differently than in the initial report.

Included in the Teacher and Aide Studies are the following sections:

C	Cost/Utility Study	Dr. John Thompson
D	Teacher Aide Attitude Inventory Study	Dr. John Williams
E	Minnesota Teacher Attitude Inventory Study . .	Dr. Quinn Brunson
F	Teacher Activity Instrument Study	Dr. John Thompson
G	Purdue Teacher Opinionaire Study	Dr. Quinn Brunson
H	Teacher Aide Evaluation Study	Dr. Quinn Brunson
I	Teacher and Aide Predictor Studies	Dr. John Thompson Dr. John Williams
J	Use of Teacher Aide Instrument Study	Dr. Edward Krahmer

A description of the objectives, instrumentation (where applicable), data collection procedures, hypotheses and limitations for each section are presented as introductory material for the presentation of data which follows.

SECTION C

TEACHER AIDE UTILITY/COST RATIO STUDY

Objectives

In a period of rapidly rising costs for public education, the consideration of the relationships of costs to utility has become increasingly important. Human utility in schools is difficult to measure, as it is acknowledged that factors such as empathy, friendliness, and supportiveness defy quantification. However, a paraprofessional who is very supportive of students, but who does not perform valuable services for the district is of dubious utility. In the future, boards of education and administrators will be forced to make decisions which take into account both affective and cost-utility factors of aides, and to determine the ratio of each which will be acceptable when spending district funds.

The Grand Forks Title III Project gave researchers an opportunity to make an exploratory study of aide utility during the 1968-69 school year, with an opportunity to evaluate the information and make any corrections necessary to continue the study during the following year. In addition, the data were used in another section of this report (see section I.)

The major objectives of this section were to; 1) ascertain a cost to utility ratio for each aide based upon direct cost data, and 2) attempt to determine the effect, if any, an aide has upon teaching routines when she is assisting a particular teacher.

Concomitant objectives were to; 1) determine which patterns of aide usage are conducive to attaining a favorable cost to utility ratio, 2) determine whether aide usage patterns vary throughout the year, 3) analyze data gatherings and analysis techniques used in the exploratory phase in 1968-69 and refine them for use in 1969-70, and 4) gather data on the number of hours and types of usage individual teachers used aides.

Development of the Instrument

Development of the instrument may actually be divided into three different areas. First, the Teacher Aide Log used by the teacher aides to report their time usage and the teacher for whom they were working. Second, the development of a utility ratio to be assigned to each activity. Third, development of a Teacher Log, and fourth, the assignment of a utility category to each item in the Teacher Log.

The Teacher Aide Log, a sample of which may be found at the conclusion of this section, was developed from observation of the aide activities during the initial year of the project. The Project Director, Mrs. Margaret Abbott, furnished the data necessary to determine the aide activities which were divided into the following categories:

A. Clerical - out of class
B. Audio-visual material and equipment (including books)
C. Clerical - in class
D. Supervision
E. Instruction
F. Other

Each activity was assigned an identifying number and placed in one of the categories. The aides were consulted on the statements in each category and concurred that the items were appropriate. This information was printed on one side of the log so aides could refer to the numbers when filling out their weekly report.

On the remaining side of the sheet, a grid was constructed which divided the school day into quarter-hour segments and the week into work days. A space for the task number and the teacher for which the aide was working for each quarter-hour was included.

The utility factor to be assigned each item was determined by asking a panel of administrators, which included the Superintendent of Schools, the two Assistant Superintendents, the Title III Project Director, and a building principal to rate independently each item. The panel members were told to express their factor numbers by their perception of the dollar and cents utility that each item produced for the school system. Each member was given two dollar figures; the current federal minimum wage for employees of this category ($1.30 per hour) and the approximate average hourly wages of the aides ($1.70 per hour) for their information. Each was told that there were no upper or lower limits on the utility factor they could assign to each item. However, they were asked to do their rating independently. The range of utility ran from $1.00 to $3.50. Interestingly, the low and high range were identical by all raters.

When the ratings were made, they were compared to determine if there were differences in the utility figure assignment. The raters were in close agreement, as there were only five discrepencies among them. The raters were called together for a conference in which the differences were easily reconciled. Since this section of the research will continue, the utility figures for each category will not be printed.

The Teacher Log was developed in the same manner as the Teacher Aide Log. However, the work assignments contained statements appropriate to the teacher's role. The method used to determine the utility categories is described on page 16 of this section.

Collection of the Data

Each aide filled out a rating sheet each week from September through May 5, 1969. These were collected each month by the Project Director, Mrs. Abbott, and forwarded to the Bureau of Education Research and Services of the University of North Dakota. The data were checked for coding errors or other inaccuracies, and the raw data were then punched on cards.

A computer program was designed which tabulated the data in the following categories: by item; by aide; by items multiplied by the utility ratio; by average utility per month and total average utility; by aide usage by teacher, by item, and total.

Direct cost data were computed in three ways:

1) Direct Teacher aide costs
2) Costs plus a percentage for administration
3) Cost plus expenses under the Title III program

These data were collected from the office of the Assistant Superintendent for Business as well as from the Project Director.

Hypotheses

The major hypotheses, with sub hypotheses following, tested in this section were:

1) All aides would exhibit a utility/cost ratio above 1.00 based upon the reported data.

a) Aides would exhibit major changes in use categories as the school year progressed.

b) Utility is a function of the percentage of time reported in each category.

2) Teacher time usage would be positively effected when aides were available to assist teachers.

Presentation of the Data

These data are presented in two sections which correspond to the hypotheses stated above. The cost utility ratio (u/c × 1.00) was calculated from the raw data tables which contained the following information. The aide number, the number of hours per month the aide reported working in each category (see numbers 10 through 91 on the Teacher Aide Log at the end of the Chapter) multiplied by the utility figure assigned for that category (see page 3 for an explanation of the utility figure) and the total divided by the number of hours worked to find the average utility figure. This figure was reported for each month as well as the whole year, although only the yearly total was used in this section.

Cost data were secured from the Grand Forks School District and were calculated three ways: 1) direct teacher aides costs, which included the per hour cost plus the per hour cost of fringe benefits; 2) the direct costs plus a nine percent override which reflects a portion of both district and building administrative costs which were deemed applicable to teacher aides; and 3) the total cost of the Title III Director spread among the aides on a per hour basis. Undoubtedly it was inequitable to spread all the costs in the third calculations over the aides, as the Director had a multitude of other responsibilities in connection with the project which could not be construed to be direct aide costs. However, it was nearly impossible to ascribe a portion of her time to direct supervision, so the total was calculated and is subject to the reservations described above.

Fringe benefits for the aides include Social Security, Workman's Compensation, and Old Age Survivor's Insurance.

Table I presents the utility/cost ratio for each aide based on direct costs only.

Findings Related to First Hypotheses

TABLE I

DIRECT COSTS PER HOUR, AVERAGE UTILITY RATE AND UTILITY/COST RATIO FOR TEACHER AIDES DURING 1968-69

Aide No.	Mo.Salary	Hr.Rate	Hr. Fringe Benefit	Total Hr. Rate	Av. Hr.Util Rate	Cost/ Util.Ratio
0802	$240	1.60	.08	1.68	2.49	1.48
0801	$250	1.67	.08	1.75	2.14	1.22
0702	$250	1.67	.08	1.75	2.09	1.19
0705	$240	1.60	.08	1.68	1.79	1.07
0603	$240	1.60	.08	1.68	1.74	1.04
0701	$240	1.60	.08	1.68	1.69	1.01
0704	$250	1.67	.08	1.75	1.73	.99
0601	$250	1.67	.08	1.75	1.63	.93
0703	$240	1.60	.08	1.68	1.55	.92
0602	$240	1.60	.08	1.68	1.47	.88
0605	$250	1.67	.08	1.75	1.53	.87
0706	$240	1.60	.08	1.68	1.39	.83
0606	$240	1.60	.08	1.68	1.30	.77
0604	$240	1.60	.08	1.68	1.24	.74

Six of the fourteen aides had a positive utility to cost ratio based on this breakdown. The median utility/cost ratio was .96, and Q_1 and Q_3 were .85 and 1.125 respectively. Among those with a positive ratio, two have a bachelor's degree in education and are qualified teachers.

In Table II, the total hourly rate reported in Table I is increased by nine percent, which represents a portion of the costs of administration chargeable against teacher aides. This is not correct in the case of the Grand Forks Project, as the total costs are borne by E.S.E.A. Title III. However, if this was not the circumstance, the administrative overhead would certainly be appropriate. Since it is entirely possible that this cost utility study might become a model for other aide evaluations, it was considered proper to include the nine percent breakdown in the study.

The nine percent figure is derived in this manner: six and six tenths (6.6) percent was the building administration cost divided by the total budget for instruction (200 series) of which two and four tenths (2.4) are from general district administration (100 series). The latter percentage was produced by dividing the 100 series into the total school district budget. The credibility of including the 2.4 percent may be open to discussion, and the reader may choose to recalculate, using either the 6.6 percent figure or those appropriate in his own school district.

The nine percent increase made a marked difference in the number of aides who exceed the utility/cost ratio. The median ratio was then .88, and Q_1 and Q_3 were .78 and 1.035 respectively.

TABLE II

DIRECT COSTS PER HOUR, INCLUDING NINE PERCENT ADMINISTRATIVE OVERRIDE, AVERAGE UTILITY RATE AND UTILITY/COST RATIO FOR TEACHER AIDES DURING 1968-69

Aide No.	Mo.Sal.	Hr.Rate	Hr.Frg. Benefit	Total Hr. Rate	Av.Hr. Ut.Rate	Ad.Costs	Total Costs	Cost/ Util.Ratio
0802	$240	1.60	.08	1.68	2.49	.15	1.83	1.36
0801	$250	1.67	.08	1.75	2.14	.16	1.91	1.12
0702	$250	1.67	.08	1.75	2.09	.16	1.91	1.09
0705	$240	1.60	.08	1.68	1.79	.15	1.83	.98
0603	$240	1.60	.08	1.68	1.74	.15	1.83	.95
0701	$240	1.60	.08	1.68	1.69	.15	1.83	.92
0704	$250	1.67	.08	1.75	1.73	.16	1.91	.91
0703	$240	1.60	.08	1.68	1.55	.15	1.83	.85
0601	$250	1.67	.08	1.75	1.63	.16	1.91	.85
0605	$250	1.67	.08	1.75	1.53	.16	1.91	.80
0602	$240	1.60	.08	1.68	1.47	.15	1.83	.80
0706	$240	1.60	.08	1.68	1.39	.15	1.83	.76
0606	$240	1.60	.08	1.68	1.30	.15	1.83	.71
0604	$240	1.60	.08	1.68	1.24	.15	1.83	.68

The hourly cost for aide services which included all supervisory costs for seventeen aides (three of which are not included in this study) are spread over the aides in Table III. The cost of supervision is 48 cents per hour per aide.

TABLE III

DIRECT COSTS PER HOUR, INCLUDING ACTUAL PER HOUR SUPERVISORY COSTS, AVERAGE UTILITY RATIO AND UTILITY/COST RATIO FOR TEACHER AIDES DURING 1968-69

Aide No.	Mo.Sal.	Hr.Rate	Hr.Frg. Benefit	Sup.Sal.& Frg.Benefit	Total Costs	Av.Hr. Ut.Rate	Cost/ Util Ratio
0802	$240	1.60	.08	.48	2.16	2.49	1.15
0801	$250	1.67	.08	.48	2.23	2.14	.96
0702	$250	1.67	.08	.48	2.23	2.09	.94
0705	$240	1.60	.08	.48	2.16	1.79	.83
0701	$240	1.60	.08	.48	2.16	1.69	.78
0603	$240	1.60	.08	.48	2.23	1.74	.78
0704	$250	1.67	.08	.48	2.23	1.73	.76
0601	$250	1.67	.08	.48	2.23	1.63	.73
0703	$240	1.60	.08	.48	2.16	1.55	.72
0605	$250	1.67	.08	.48	2.23	1.53	.69
0602	$240	1.60	.08	.48	2.16	1.47	.69
0706	$240	1.60	.08	.48	2.16	1.39	.64
0606	$240	1.60	.08	.48	2.16	1.30	.60
0604	$240	1.60	.08	.48	2.16	1.24	.57

The information presented in Table III does nor represent local expenditures and is presented here as data which may be useful to the large number of aide projects which are currently being funded under Career Opportunity Programs or other Office of Education programs. The utility/cost ratio is positive in one case and the median utility was .74. Q_1 and Q_3 were .66 and .88 respectively.

The second and third breakdowns in this section were added for illustrative purposes. The first breakdown, which includes direct teacher costs only, will be used in subsequent applications of the utility/cost ratio to various data.

The first ancillary statement was concerned with whether there were major changes in the pattern of aide usage throughout the year. Examination of the computer print-out data, which reported each aide's hours worked per month per item, disclosed that for the fourteen aides, there were a total of 237 items listed for which one or more aide reported working. Of that number, there were only 17 items for which there was a significant change in time usage during the course of the year. The seventeen were scattered randomly among the aides and among the items. One aide had four of the changes. No pattern of change could be established.

Therefore, one may conclude that in the second year of the study, there was not a major change in the pattern of aide usage during the year; nor were there changes within months, unless there were unusual conditions, e.g., Christmas, end of semester, Easter, etc.

This ancillary finding is important, as it allows the researchers to limit the number of weeks for which the aides will be requested to complete Teacher Aide Logs in 1969-70.

The reader may be interested in the rank order of the top five items in terms of total time worked. The rank order is given below:

1. #53 Providing general supervision (clean-up and help with winter clothes, monitoring hallways and lunchrooms, after school, etc.)
2. #13 Duplicating - including collating.
3. #81 Instructing of part of class under teacher direction in individual or small group learning sessions.
4. #18 Correcting student tests, workbooks, homework, etc.
5. #11 Typing - Instructional (classroom materials, tests, etc.)

The second ancillary question dealt with the percentage of time spent carrying out tasks in the various categories designated on the Teacher Aide Log Sheet. The categories are: A. Clerical-out-of-class, B. Audio-visual materials and equipment (including books), C. Clerical - In class, D. Supervision, E. Instruction, F. Other.

Table IV arrays the percentage data by category with a calculation of the average, median and quartile range as summary data for each category. In addition, the direct utility/cost ratio for each aide is presented.

TABLE IV

PERCENT OF TIME EACH AIDE SPENT IN VARIOUS CATEGORIES OF WORK, AVERAGE FOR ALL AIDES AND THE COST UTILITY RATIO FOR AIDES

Aide No.	A	B	C	D	E	F	Cost/Util. Ratio
0802	22%	4%	0%	15%	51%	8%	1.48
0801	33%	5%	0%	27%	31%	3%	1.22
0702	23%	13%	1%	26%	27%	10%	1.193
0603	50%	0%	1%	33%	14%	2%	1.036
0705	48%	12%	0%	17%	16%	7%	1.066
0701	48%	13%	1%	33%	3%	3%	1.007
0704	34%	2%	1%	43%	10%	10%	.987
0703	52%	6%	0%	26%	7%	9%	.923
0601	37%	6%	1%	48%	5%	2%	.93
0602	57%	1%	2%	25%	0%	15%	.876
0605	46%	5%	1%	42%	2%	3%	.873
0706	69%	4%	4%	22%	1%	1%	.828
0606	75%	2%	0%	9%	0%	14%	.773
0604	64%	0%	26%	8%	0%	0%	.739
Average	47%	5.2%	2.7%	26.7%	11.9%	6.2%	
Median	48	4.5	N/A	26	6	5	
Q_1	33.5	1.5	N/A	16	.5	2	
Q_3	60.5	9.0	N/A	37.5	21.5	10	

One may choose to make several comparisons of the percentage of time spent and the utility/cost ratio. Two comparisons may be particularly significant: 1) The three aides with the highest cost to utility ratio spent the largest percentage of time in category E. The three aides with the lowest cost to utility ratio spent the greatest percent of their time in category A. In fact no aide who spent more than 50% of her time in category A achieved a positive cost to utility ratio. It is obvious that careful study of the proposed uses of aides will be a key factor in determining utility. The decision of the researchers was that the study has excellent potential and should be continued in 1969-70 with improved collection and analysis techniques.

An effort was made to explore the possibilities of a predictor of aide utility using the following variables: age, experience as an aide, educational attainment, score on the Minnesota Teacher Attitude Inventory (MTAI), and the Teacher Aide Evaluation (see TAE instrument, Section H). The sample size was limited, as were the predictor variables. However, a stepwise regression program was employed which used the utility/cost ratio as a criterion variable.

TABLE V

CORRELATION COEFFICIENTS FOR AGE, EDUCATIONAL ATTAINMENT, AIDE EXPERIENCE, TEACHER AIDE EVALUATION, AND MTAI AGAINST THE UTILITY/COST RATIO

Variable	Correlation	Significance*
Age	-.35	N.S.
Educational Attainment	.32	N.S.
Aide Experience	.10	N.S.
Teacher Aide Evaluation	.17	N.S.
MTAI	.31	N.S.

Multiple Correlation .500 *Significance thirteen degrees of freedom .44

It is clear that none of the variables listed above were highly correlated with teacher aide utility. The reported multiple correlation only accounts for approximately twenty-five percent of the variance in the utility/cost ratio.

One may conclude that using either personal variables or test variables, or both, to employ aides who will function in a positive utility/cost ratio is non-productive. Perhaps the addition of more test variables, e.g., intelligence or aptitude tests, would produce significant results.

Findings Related to the Second Hypothesis

The second major hypothesis raised the comparison question relative to aide utility, "what effect does the aide have on the teacher's activities when working for the teacher?" Such data was difficult to collect and to interpret, however, an exploratory study to make preliminary decisions was made during 1968-69. Weakness in the method of collection and data analysis will be noted and changed for the 1969-70 study.

A Teacher Log (a copy of which appears at the end of this section) similar in format to the Teacher Aide Log was developed. The list of work assignments was designed to cover the daily activities of the teacher in a descriptive fashion. The teachers in the experimental schools were requested to fill out the Teacher Log using directions similar to those given the Aides (see page 4) during the week of May 5-9, 1969. Ninety teachers in the three schools were given the log with verbal directions for filling it out. Each Teacher Log was coded so the teacher did not have to identify himself in any manner, in an effort to achieve honest reporting by the teachers. The Logs were collected by one teacher in each building and sent directly to the University. Eighty-one completed instruments were received, for a response rate of .90. However, it was necessary to eliminate 3 instruments because of improper coding, leaving an N of 78.

The panel of experts (see page 3) convened and performed a modified Q sort technique on the items to determine the relative importance of each item to the school district. Categorized as 1, highest utility, were items 20, 26, 70, 75, 77, and 65. Categorized as 2 were items 34, 64, 69, and 59. Categorized as 3 were items 58, 24, 27, 35, and 21. Categorized as 4 were items 22, 73, 74, and 76; category 5 items 23, 36, 37; category 6 items 25, 60, 66, 68, 78, 71, and 63; other possible categories: items 61, 67, 72, and 62.

It must be pointed out that these are a reflection of the ideas of the panel of one school district, and might not be the same in other years or other districts.

The Teacher Aide Logs for the week of May 5-9 were compared to the Teacher Logs. Each aide had written down, as they did every week, the teachers they were working under at a given time of the day. This was compared to the task the teacher reported doing during that time period during the days the aides were in the room and when aides were not in the room.

The results of these comparisons must be considered indications of a trend rather than completely accurate on an individual basis. The data in Table VI is reported with that reservation.

TABLE VI

REPORTED CHANGE IN IN-CLASS ACTIVITIES		REPORTED CHANGE IN OUT-OF-CLASS ACTIVITIES WHEN AIDE WAS ASSISTING	
Reported Category Change	Did not Report Category Change	Reported Category Change	Did not Report Category Change
37	44	8	11

The label "in class activity" refers to activities when the teacher is in the classroom. "Out of class" means the teacher is not in class while the aide is working for her.

The number of cases in which the aide being in the classroom resulted in the teacher reporting a different category was fewer than where no category difference was reported. The same result occurred in out-of-class activity.

The next step in the analysis was to take the thirty-seven and the eight cases where a change was reported and determine whether the direction was toward categories rated as having greater utility or the reverse. That data is summarized in Table VII.

TABLE VII

CHANGE IN IN-CLASS ACTIVITY			CHANGE IN OUT-OF-CLASS ACTIVITY		
To Greater Utility	To Less Utility	Within Category	To Greater Utility	To Less Utility	Within Category
12	7	18	2	5	1

As would be expected, the potential for a positive change would be greater when aides were assisting with in-class activities than when assistance was given in out-of-class activities. Certain of the negative out-of-class categories occurred when aides were required to act as substitute teachers when the teachers were away from the building.

It may be well to reiterate three limitations on this hypothesis: 1) This was an exploratory study, 2) The teachers responded for one week only, and 3) The data was to some degree extrapolated. Under those limitations, the second hypothesis that teacher time usage would be positively effected when aides were available to assist teachers, was rejected.

Summary

This exploratory study was designed to attempt to determine the direct cost to utility ratio of aides working in the project. It was based upon a self reporting log kept by the aides, a utility factor determined by a panel of experts for each item the aide reported doing, and determination of the direct costs to the district for employing aides.

Three breakdowns of direct costs were made. The first, which accounted for aide salary and fringe benefits, showed six of fourteen aides with a utility/cost ratio above 1.00. The second, which included a calculated percentage for administrative costs as well as the aide costs, indicated three aides with a positive utility to cost ratio. The third breakdown which included the administrative costs of the Title III project apportioned among the aides, resulted in 1 positive ratio.

It is clear that two factors infringe on utility: 1) the district utility figure assigned by the district to each part of an aide's work, and 2) the percent of time the aide spends on various kinds of work. The latter information was calculated for each aide and presented in tabular form.

The question of whether the pattern of aide usage varied significantly during the year was examined. No significant evidence that aides changed their categories of effort during the year was found.

The second phase of the analysis was an effort to determine whether the aide made a change in the activities of the teacher. The teachers logged their activities for a week. This log was compared to the aide log for the same week to determine whether change occurred and if so, whether the change was to an activity which was of greater utility to the district.

Analysis of the data indicated that changes in teacher activity did occur when aides worked in the room. If the teacher stayed in the room, the changes in his activity often were toward a category of greater utility. If the teacher was not in the room when the aide was working, the change was toward less utility.

Recommendation

The study should be continued with some modifications:

1) Since there were few significant changes in aide use from month to month, the study would be as valid if aides kept their logs only one week per month.
2) A comparison of time spent in work categories between paid and unpaid aides (volunteer aides are used in two of the experimental schools).
3) A comparison of time spent in Work Categories between paid and sophomore education majors who begin their teacher training by working in the public school classroom (Sophomore in Service).
4) A comparison of aide utility by grade level and type class organization.
5) A teacher utility to cost study to compare ratios with the aide ratios.
6) A wider distribution of persons, i.e., school board members, teachers, etc., to be involved in determination of the utility value of the work items.

Week___________________

TEACHER AIDE LOG

Name___________________
School___________________

Monday			Tuesday			Wednesday			Thursday			Friday		
Hr.& Min.	Task	Tchr.	Hr.& Min.	Task	Tchr.	Hr.& Min.	Task	Tchr.	Hr.& Min.	Task	Tchr.	Hr.& Min.	Task	Tchr.
8:00			8:00			8:00			8:00			8:00		
9:00			9:00			9:00			9:00			9:00		
10:00			10:00			10:00			10:00			10:00		
11:00			11:00			11:00			11:00			11:00		
12:00			12:00			12:00			12:00			12:00		
1:00			1:00			1:00			1:00			1:00		
2:00			2:00			2:00			2:00			2:00		
3:00			3:00			3:00			3:00			3:00		
4:00			4:00			4:00			4:00			4:00		

If you have any additional comments, write them on a separate sheet of paper and attach to this.

Week __________________

List of Work Assignments

Name__________________
School__________________

Hours spent
per week:

A CLERICAL-OUT OF CLASS

__________ 11 Typing-Instructional (classroom materials, tests, etc.)
__________ 12 Typing-Non-instructional (letters to parents, orders for materials, etc.)
__________ 13 Duplicating (including collating)
__________ 14 Filing (office or classroom)
__________ 15 Recording student information (record and/or average marks, maintain cumulative records, etc.)
__________ 16 Maintaining inventory (classroom and/or workroom materials and supplies)
__________ 17 Preparing bulletin boards and displays of pupil work
__________ 18 Correcting student tests, workbooks, homework, etc.
__________ 19 Assisting principal in general office routine

B AUDIO-VISUAL MATERIALS AND EQUIPMENT (INCLUDING BOOKS)

__________ 31 Scheduling and operating A-V equipment
__________ 32 Finding and ordering supplementary books and A-V materials
__________ 33 Preparing A-V materials

C CLERICAL-IN CLASS

__________ 41 Collecting lunch or milk money, donations to United Fund, etc.
__________ 42 Writing passes (to restroom, library, office, etc.)
__________ 43 Taking classroom attendance (call roll, keep seating chart, keep excuse and tardiness notes, etc.)
__________ 44 Distributing and collecting student material (homework, workbook, tests, handouts, etc.)
__________ 45 Serving as classroom librarian (check out books, keep records of books read, etc.
__________ 46 Writing materials on chalkboard at teacher's request

D SUPERVISION

__________ 51 Monitoring tests (including make-up)
__________ 52 Supervising individual learning sessions (pupil oral reading, taped lessons, etc
__________ 53 Providing general supervision (clean-up and help with winter clothes, monitoring hallways and lunchroom, after school, etc.)
__________ 54 Supervising study periods (in class, library, study hall, seat work, etc.)
__________ 55 Helping supervise field trips, plays, programs
__________ 56 Supervising student recreation periods (gym, playgrounds, etc.)
__________ 57 Handling classroom interruptions at teacher's request

E INSTRUCTION

__________ 81 Instructing of part of class under teacher direction in individual or small group learning sessions (include art, music, etc.)
__________ 82 Instructing of whole class under teacher direction in special areas of competency (include art, music, etc.)
__________ 83 Providing make-up lessons for students absent or out-of-the-classroom
__________ 84 Assisting teacher with demonstrations
__________ 85 Reading materials to pupils under teacher supervision (spelling words, stories, etc.)

F OTHER

__________ 91 When using this number please describe what you did in the space provided, or attach another sheet of paper if the space is insufficient.

TEACHER LOG

Monday		Tuesday		Wednesday		Thursday		Friday	
Hr. & Min	Task	Hr. & Min.	Task	Hr. & Min.	Task	Hr. & Min.	Task	Hr. & Min.	Task
8:00		8:00		8:00		8:00		8:00	
9:00		9:00		9:00		9:00		9:00	
10:00		10:00		10:00		10:00		10:00	
11:00		11:00		11:00		11:00		11:00	
12:00		12:00		12:00		12:00		12:00	
1:00		1:00		1:00		1:00		1:00	
2:00		2:00		2:00		2:00		2:00	
3:00		3:00		3:00		3:00		3:00	
4:00		4:00		4:00		4:00		4:00	

Time spent this week giving instructions to Aide: ______________________

Hours Aide worked for me this week: ______________________

List of Work Assignments

20. Individual student conferences (instructional matters)
21. Student teacher supervision
22. Supervision of laboratory exercises
23. Preparation of bulletin boards, exhibits, displays, and mock-ups
24. Grading subjective examinations
25. Grading objective examinations
26. Individual student-teacher interactions
27. Grade determination (for reporting to parents, records)

34. Referral services, summer school, special education, psychological
35. Classroom presentation or demonstrations
36. Assisting students individually with special equipment (listening station labs, library)
37. Taking care of personnel affairs

58. Large group interactions, lecture and/or class discussions
59. Textbook selection

60. Operation of audio-visual equipment
61. Supervised study time
62. Test construction
63. Instructional typing (study guides, tests, etc.)
64. Conferences with the administration
65. Previewing and selection of instructional materials (films, tapes, text, library materials)
66. Recording report cards, permanent records
67. Recess
68. Taking inventory of material and requisitioning more materials
69. Professional reading

70. Small group instructional interaction
71. Filling out administrative initiated reports or surveys
72. Determining and structuring lesson objectives
73. G.F.E.A., N.D.E.A. or other professional association meetings or committees
74. P.T.A. attendance, American Education Week activities, special reports to groups regarding school activities
75. Conferences with parents, related to students in course
76. Work break
77. Conferences with other teachers, counselors or supervisors related to student problems
78. Filling out Federal cards and census reports

SECTION D

THE TEACHER AIDE ATTITUDE INVENTORY STUDY

Objectives

The Teacher Aide Attitude Inventory (TAAI) was included in the previous evaluation and the results on differences between experimental and control teachers was reported. The recommendations of the researchers was that an effort be made in the second project year to construct and validate an attitude scale which would have general applicability to teacher aide projects. This is the direction which has been taken during the current year; thus the major objective has been to validate the instrument. The present TAAI is an extension of an earlier version made for the project in 1967.

Development of the Instrument

The first version had 44 items; the second version (constructed in 1969) had 60 items. Each principal in the experimental schools was asked to submit statements about what he perceived as positive or negative aspects of an aide program. These were culled and rewritten to help provide a pool of items roughly twice the size of the proposed final instrument. No previous attempt had been made to seek reliability or validity of the instrument; thus the changes that were made were done on an intuitive basis.

Data Collection Procedures

The second version of the Teacher Aide Attitude Inventory (60 items) was administered to all teachers in the experimental group N=88 on April

28, 1969. The data presented in this section are based upon that single administration.

Presentation of the Data

The first part of the present section is concerned with an evaluation, item by item. The second portion is concerned with validity for the TAAI. The third portion is concerned with arriving at some measures of reliability for the TAAI.

Each item on the revised TAAI is included, together with the responses to the Likert scaled items. For convenience, in this section, the following values will remain constant:

SA is coded as equal to 1
A is coded as equal to 2
U is coded as equal to 3
D is coded as equal to 4
SD is coded as equal to 5
SA means strongly agree
A means agree
U means undecided
D means disagree
SD means strongly disagree

For example, for item 1, $\overline{x} = 3.614$. This means that the group of respondents (N = 88) can be characterized as being close to D (disagree) on this item.

The items, the numbers responding to each referent, and mean and standard deviation follow.

TABLE I

MEAN SCORE AND STANDARD DEVIATION OF THE RESPONSES IN THE 1969 ADMINISTRATION OF THE TAAI

SA	A	U	D	SD			
1	11	24	37	15	$\bar{X} = 3.614$, $s = 1.025$	1.	The self contained classroom should serve as a model for the elementary schools.
35	49	2	2	0	$\bar{X} = 1.67$, $s = .638$	2.	The presence of an aide in the classroom adds one more adult personality to which pupils can relate.
2	21	8	50	7	$\bar{X} = 3.443$, $s = 1.015$	3.	A superintendent, principal, or other advisory person should seek the teacher's permission before entering the classroom.
3	34	12	31	8	$\bar{X} = 3.080$, $s = 1.116$	4.	Some non-instruction tasks such as grading homework papers and taking roll are a necessary part of the teacher's role.
39	46	2	1	0	$\bar{X} = 1.602$, $s = .598$	5.	The position of teacher aide should be looked upon as a profession in itself; many people can find satisfaction and self fulfillment in such a position.
20	37	4	22	5	$\bar{X} = 2.489$, $s = 1.250$	6.	The purpose of the teacher aide is to lighten the load of the classroom teacher.
45	42	0	1	0	$\bar{X} = 1.511$, $s = .567$	7.	The success of aides depends on the creativeness and willingness of the teacher to use them.
17	51	9	10	1	$\bar{X} = 2.170$, $s = .913$	8.	Aides can serve as a link between the teacher and her or his pupils.
5	21	13	45	4	$\bar{X} = 3.25$, $s = 1.053$	9.	Availability of teacher aides means that the school program will be forced to change.
7	39	10	27	5	$\bar{X} = 2.818$, $s = 1.130$	10.	The teacher aide is in reality an apprentice teacher, who, with appropriate further training, might become a full-fledged professional.
28	55	3	1	1	$\bar{X} = 1.773$, $s = .673$	11.	While clerical help is useful for typing and related activities, it would also be worthwhile to have non-professional or semi-professional help with many other duties, i.e.,

setting up experimental apparatus in a science class.

SA	A	U	D	SD
16	52	5	15	0

$\bar{X}$ = 2.216, s = .940

12. Teacher aides must understand that the teacher has complete authority in the classroom.

SA	A	U	D	SD
0	6	7	45	30

$\bar{X}$ = 4.125, s = .828

13. The act of grading teacher-made objective tests is a confidential act, and as such cannot be given to a teacher aide.

SA	A	U	D	SD
15	65	5	2	1

$\bar{X}$ = 1.966, s = .651

14. A high degree of education, i.e., a bachelors degree, does not insure that an aide will be successful.

SA	A	U	D	SD
5	15	21	41	6

$\bar{X}$ = 3.318, s = 1.023

15. It is demeaning to the dignity of a teacher to do such tasks as patrolling the lunch room during lunch hour.

SA	A	U	D	SD
10	40	19	18	1

$\bar{X}$ = 2.545, s = .982

16. While it is financially a simple solution to require teachers to collect tickets at athletic events, it is more professional to have this task performed by some other individual.

SA	A	U	D	SD
12	26	9	38	3

$\bar{X}$ = 2.932, s = 1.192

17. The teacher cannot expect the teacher aide to conduct actual classroom activities (e.g., explain a math problem to the class, etc.).

SA	A	U	D	SD
48	39	1	0	0

$\bar{X}$ = 1.466, s = .524

18. Because of the assistance of aides, the teacher has more time to concentrate on duties directly associated with better teaching.

SA	A	U	D	SD
13	36	36	2	1

$\bar{X}$ = 2.341, s = .801

19. Our teacher aides have greatly improved the understanding between school and community.

SA	A	U	D	SD
2	11	9	9	41

$\bar{X}$ = 3.864, s = 1.041

20. The addition of teacher aides would enable the class size to increase substantially (say from 30 to 45 students).

SA	A	U	D	SD
25	62	1	0	0

$\bar{X}$ = 1.727, s = .473

21. The aide can give assistance to children who otherwise would have to wait for the teacher to get to them.

SA	A	U	D	SD
9	61	13	3	2

$\bar{X}$ = 2.182, s = .751

22. The teacher aides should be able to perform any function for which past training or experience qualifies them.

SA	A	U	D	SD		
3	25	23	28	9	$\overline{X} = 3.170$, s = 1.064	23. To help solve the need for teacher aides, the clerical help presently made available to the principal should be shared with the teachers.
3	50	21	13	1	$\overline{X} = 2.534$, s = .830	24. Most children do not feel threatened by an aide as they do not see the aide in the role of evaluator.
0	1	3	49	35	$\overline{X} = 4.341$, s = .604	25. Many tasks proposed for teacher aides are now being done by students, there is no sense in hiring a person to do these jobs.
2	2	12	50	22	$\overline{X} = 4.000$, s = .830	26. Tasks such as taking attendance provide the teacher a moment's relaxation and, as such, should continue to be done by the teacher.
0	5	18	47	18	$\overline{X} = 3.886$, s = .794	27. The fact that clerical assistance has been made available to the administrator, and such assistance is generally not available to the teacher, is simply an indication of unfair use of administrative prerogative.
44	36	3	4	1	$\overline{X} = 1.659$, s = .843	28. The purpose of the teacher aide is to free the teacher from the non-instructional tasks so that the teacher can more effectively serve the instructional needs of the students.
3	43	24	17	1	$\overline{X} = 2.659$, s = .869	29. The teacher aide should be looked upon as a person who will probably seek to attain full professional status by continued collegiate study.
5	38	10	31	4	$\overline{X} = 2.898$, s = 1.094	30. Much of the teacher's time is spent doing non-professional tasks.
37	46	4	1	0	$\overline{X} = 1.648$, s = .626	31. The concept of a teacher in a classroom as an island to himself is outmoded; today we have need for the expertise of the consultant, the art of the teacher and the assistance of the teacher aide.
17	50	15	6	0	$\overline{X} = 2.114$, s = .794	32. The teacher aide should at times relieve the teacher of certain responsibilities.
0	5	7	56	20	$\overline{X} = 4.034$, s = .734	33. The physical presnece of the teacher aide in the classroom should be minimized.

SA	A	U	D	SD
0	0	1	41	46

$\bar{X}$ = 4.511, s = .525

34. While clerical help is needed for the superintendent, principals and other advisory professionals, there seems little reason to go to such an expense for the classroom teacher.

SA	A	U	D	SD
0	3	1	41	43

$\bar{X}$ = 4.409, s = .689

35. The average classroom teacher is not so busy that he (she) needs assistance with the clerical tasks.

SA	A	U	D	SD
30	50	1	1	0

$\bar{X}$ = 1.79, s = .730

36. An aide can be effective only to the degree the teacher allows her to be.

SA	A	U	D	SD
2	40	20	19	7

$\bar{X}$ = 2.875, s = 1.037

37. As the administrator of educational activities, it is the prerogative of the principal to have available to him (her) certain clerical assistance that is not available to the classroom teacher.

SA	A	U	D	SD
0	4	3	53	28

$\bar{X}$ = 4.193, s = .709

38. Teachers should make arrangements for their own typing; it is not feasible for the school district to supply typists for teacher's use.

SA	A	U	D	SD
10	51	16	6	5

$\bar{X}$ = 2.375, s = .975

39. The employment of teacher aides enhances the position of the teacher.

SA	A	U	D	SD
30	53	4	1	0

$\bar{X}$ = 1.739, s = .652

40. Effective aides are those who relate well with their co-workers and have empathy for children.

SA	A	U	D	SD
30	53	3	1	1

$\bar{X}$ = 1.750, s = .682

41. It would be permissible to have a teacher aide give help to individual students on arithmetic problems.

SA	A	U	D	SD
2	14	21	45	6

$\bar{X}$ = 3.443, s = .920

42. The best teacher aide is the student teacher as he (she) can take over actual teaching responsibilities.

SA	A	U	D	SD
16	61	10	1	0

$\bar{X}$ = 1.955, s = .585

43. The greatest limitation upon the use of aides is the lack of creativity on the part of teachers in using them.

SA	A	U	D	SD
3	45	22	15	3

$\bar{X}$ = 2.659, s = .921

44. The presence of another adult in the classroom should ease the discipline problems that may exist in the classroom.

SA	A	U	D	SD
7	58	12	10	1

$\bar{X}$ = 2.318, s = .824

45. Some teachers never get past the point of assigning aides clerical work.

SA	A	U	D	SD
16	58	11	1	2

$\bar{X}$ = 2.034, s = .750

46. The use of teacher aides is an excellent stepping stone to team teaching and non-grading or multi-age grouping.

SA	A	U	D	SD
12	62	10	4	0

$\bar{X}$ = 2.068, s = .657

47. A teacher who works with aides will be more receptive to allowing others to enter his classrooms.

SA	A	U	D	SD
12	67	9	0	0

$\bar{X}$ = 1.966, s = .490

48. Aides must have activities, commensurate with their abilities, which provide opportunities to interact with pupils.

SA	A	U	D	SD
6	36	29	15	2

$\bar{X}$ = 2.670, s = .919

49. Too much clerical work bores the aides and they lose enthusiasm for their work.

SA	A	U	D	SD
32	44	1	9	2

$\bar{X}$ = 1.920, s = .997

50. The teacher aides should aid the teachers, not provide them with free time.

SA	A	U	D	SD
4	26	25	30	3

$\bar{X}$ = 3.023, s = .982

51. Aides should be kept as busy as possible.

SA	A	U	D	SD
1	8	22	51	6

$\bar{X}$ = 3.602, s = .796

52. Only those aides should be employed who have specific skills, i.e., library, audiovisual, health, etc.

SA	A	U	D	SD
0	5	7	55	21

$\bar{X}$ = 4.045, s = .741

53. Teacher aides should be limited to non-instructional activities such as preparing bulletin boards.

SA	A	U	D	SD
0	4	13	55	16

$\bar{X}$ = 3.943, s = .717

54. Aides should assist with instructional activities such as class plays only when the activities are extra-curricular.

SA	A	U	D	SD
0	10	26	36	16

$\bar{X}$ = 3.659, s = .908

55. Aides can do an effective job of grading essay papers.

SA	A	U	D	SD
19	63	5	1	0

$\bar{X}$ = 1.864, s = .550

56. An aide can work effectively with one or a few students who is/are having a difficulty, thus freeing the teacher from the rest of the group.

SA	A	U	D	SD
32	47	9	0	0

$\bar{X}$ = 1.739, s = .634

57. I can do so much more with students when I have an aide.

SA	A	U	D	SD
22	53	10	2	1

$\bar{X}$ = 1.943, s = .748

58. The aide very effectively takes care of routine duties such as collecting lunch money, taking attendance, etc.

SA	A	U	D	SD	
35	50	2	0	1	59. Assumption of routine tasks by the aides frees the teacher to do more planning.

$\overline{X}$ = 1.659, s = .641

SA	A	U	D	SD	
50	33	3	1	1	60. The classroom teacher feels refreshed and more enthused about the second half of the teaching day when she does not have to supervise the lunchroom.

$\overline{X}$ = 1.523, s = .727

Item Selection-Discriminant Validity

Using the methodology suggested by Edwards (Techniques of Attitude Scale Construction, p. 152) the 60 items on the revised TAAI were examined for their discriminant validity. That is, the top 27 percent is compared to the bottom 27 percent, where top and bottom are defined in terms of total on the TAAI. In the following table included is the 't' value for each item. In each of the groups, 25 teachers were included. Wherever a negative 't' value occurs, that item had negative discriminant validity, and that item was dropped from the test.

TABLE II

'T' SCORE VALUE BY ITEM FOR 1969 ADMINISTRATION OF TAAI

Item	't'
1	.931
2	-1.370
3	-.764
4	-2.404
5	5.222
6	1.318
7	4.733
8	2.582

Item	't'
9	3.246
10	3.992
11	1.987
12	3.686
13	5.222
14	1.318
15	4.733
16	2.582
17	4.613
18	1.880
19	5.008
20	1.486
21	2.466
22	1.177
23	.896
24	2.353
25	.885
26	6.464
27	.656
28	.975
29	2.959
30	-1.141
31	.904
32	1.091
33	3.831

Item	't'
34	4.798
35	2.021
36	4.265
37	.312
38	1.108
39	5.320
40	1.530
41	3.911
42	6.235
43	4.904
44	4.240
45	1.396
46	4.145
47	.423
48	4.670
49	3.652
50	-.146
51	3.928
52	.414
53	1.043
54	3.329
55	3.470
56	2.427
57	.579
58	-.293

Item	't'
59	.398
60	.934

It should be pointed out that the revised TAAI was scored in relation to a positive attitude toward teacher aides. In general, SA = 5, A = 4, U = 3, D = 2, SD = 1. On several items this scoring is reversed: SA = 1, A = 2, U = 3, D = 4, SD = 5. The items on which reversal took place are: 1, 3, 4, 12, 13, 20, 23, 25, 26, 27, 33, 34, 35, 37, 38, 42, 51, 52, 53, 54.

The preceding tables would indicate that, after reversing the appropriate items, both groups (high and low scores) generally are favorable toward teacher aides.

While choosing any cut-off number might be viewed as arbitrary, the use of a cut-off of 1.00 in the present situation was done for several reasons. The principal reason that a more stringent cut-off was not used is that it was felt that at this stage of development of this particular opinionaire, a larger tolerance limit might be acceptable. Also, only 88 people were involved with this administration of the opinionaire and a larger 't' value could well have resulted from a larger sample.

Using a criterion of a 't' value greater than or equal to 1.000, 18 items can be eliminated from the revised TAAI. Items to be eliminated are 1, 2, 3, 4, 23, 25, 27, 28, 30, 31, 37, 47, 50, 52, 57, 58, 59, 60. One result of eliminating these items is the "purifying" effect. Many of the items being eliminated might be seen to be peripheral to the topic of the teacher aide. Actually using an arbitrary cut-off can have detrimental effects; it is recommended that item 28 also be included in a second revision. Item 28 had a discrimination index of t = .975, higher than other items scheduled for elimination.

Reliability Information

The reliability information is reported here for each item, using three different criteria, 1) the odd half, 2) the even half, and 3) the total test. The corrected split half reliability of the 60 item test is .75. In this instance reliability was defined as the correlation coefficient.

TABLE III

SPLIT-HALF CORRELATION BY ITEM FOR 1969 ADMINISTRATION OF TAAI

Item	Correlation with Odd Half	Correlation with Even Half	Correlation with Total Test
1	.42	.21	.35
2	.46	.48	.53
3	.30	.14	.24
4	.26	.42	.38
5	.38	.40	.44
6	.16	.24	.22
7	.37	.28	.36
8	.29	.39	.38
9	.45	.29	.41
10	.26	.20	.25
11	.39	.28	.37
12	.11	.21	.18
13	.31	.08	.22
14	.03	.20	.13

Item	Correlation with Odd Half	Correlation with Even Half	Correlation with Total Test
15	.18	.11	.16
16	.22	.36	.33
17	.01	-.09	-.04
18	.29	.54	.46
19	.16	.10	.14
20	-.09	.22	.08
21	.33	.29	.34
22	-.05	.11	-.03
23	.16	.00	.09
24	-.06	.26	.11
25	.32	.39	.39
26	.35	.54	.50
27	.37	.06	.24
28	.32	.47	.44
29	.18	.01	.11
30	.02	.25	.15
31	.50	.58	.60
32	.10	.36	.26
33	.46	.41	.49
34	.33	.53	.48
35	.48	.40	.49
36	.36	.45	.46
37	.22	.14	.20
38	.32	.53	.48

Item	Correlation with Odd Half	Correlation with Even Half	Correlation with Total Test
39	.18	.01	.11
40	.38	.36	.41
41	.34	.34	.38
42	-.06	.06	.00
43	.43	.34	.43
44	.00	.22	.13
45	.37	.06	.24
46	.42	.32	.41
47	.46	.28	.42
48	.39	.23	.34
49	.21	-.01	.11
50	.03	-.06	-.02
51	.03	-.05	-.02
52	-.04	.14	.06
53	.36	.31	.37
54	.36	.34	.39
55	.05	-.17	-.07
56	.11	.21	.18
57	.39	.42	.45
58	.08	.31	.22
59	.47	.42	.50
60	.38	.35	.41

Further Validation of the TAAI

Further validation of the TAAI Correlations were run between the TAAI and background variables and test data (Purdue Opinionaire and MTAI).

Correlations are also reported with teacher aide usage. Usage was classified into six different activity categories of work assignments. (See Teacher Aide Log, Section C). This information is reported in the following table.

TABLE IV

CORRELATIONS OF THE TAAI WITH BACKGROUND VARIABLES AND TEST DATA

Variable	Correlation with TAAI
Teacher Aide Usage	
(a) Clerical - Out of Class	.05
(b) Audio-Visual Materials & Equipment	.20 *
(c) Clerical - In Class	.14
(d) Supervision	.04
(e) Instruction	.12
(f) Other	-.02
(g) Total	.12
MTAI	.42 **
Purdue Opinionaire	
(1) Teacher Rapport with Principal	-.09
(2) Satisfaction with Teaching	.13
(3) Rapport among Teachers	.07
(4) Teacher Salary	-.12
(5) Teacher Load	.04
(6) Curriculum Issues	-.09
(7) Teacher Status	-.01
(8) Community Support of Education	.06
(9) School Facilities and Services	-.08
(10) Community Pressures	.15
Background Variables	
Sex	.25 *
Experience	-.09

* Significant at .05 level
** Significant at .01 level

Of the correlations with the various aspects of teacher aide usage, only the correlation with Audio-Visual Materials and Equipment (r=.20) is significantly correlated with the TAAI. The correlation with the MTAI and TAAI is .42, and this relationship is higher than for any other correlation with the TAAI. No portion of the Purdue Opinionaire is significantly correlated with the TAAI. The females had somewhat higher scores than did the males, and thus the relationship between the TAAI and sex is significant (r-.25).

Summary

The present section of study was concerned with the Teacher Aide Attitude Inventory (TAAI). The TAAI is considered to be a research instrument that is still in its development stage, and the present report is concerned with that development. The original instrument was constructed specifically for the teacher aide project in Grand Forks, North Dakota, though it is certainly felt that the instrument should measure attitudes toward the usage of teacher aides in general.

The original instrument remained unchanged throughout the first two years of the project. During the early spring of 1969, principals were asked to write statements about teacher aide usage in their own schools. From this pool of statements, the project staff chose 20 additional items and put these items into the opinionaire format. An opinionaire of 60 items was thus used in the Spring, 1969 administration of the TAAI.

In that construction of the instrument is still quite important to the TAAI, the present report is concerned with reliability and validity information. There is still a need to continue to refine the TAAI, so that it can be used with more divergent populations.

SECTION E

MINNESOTA TEACHER ATTITUDE INVENTORY

Objectives

The Minnesota Teacher Attitude Inventory (MTAI) was selected as one of the instruments to be used in evaluating the effect, if any, teacher aides would have on teacher-pupil relations.

The attitudes held by teachers will affect the ways in which their skills and knowledge are utilized in an instructional setting. A teacher has been prepared to guide the instructional activities of children, but there are also many tasks which do not require such expertise. The routine and clerical chores of the classroom usurp the teacher's time and energy from the work for which he is prepared.

A teacher who is permitted to utilize the unique skills of his profession in directing the learning activities of children, and is able to delegate non-professional chores to an aide, will have a different self-image. This teacher, by being allowed to more fully exercise his competencies as a teacher, can direct his time and energy toward developing an improved instructional climate.

Results from studies completed one year ago with the Minnesota Teacher Attitude Inventory (MTAI) in Grand Forks indicated that teachers with aides tended to maintain at least the same level of rapport with children at the end of the school year as they had at the beginning of the school year. This was in contrast to those teachers who did not have aides. Their scores on the MTAI indicated a general reduction in rapport over the same interval of time.

Development of the Instrument

The Minnesota Teacher Attitude Inventory is the result of investigations held over a period exceeding ten years which indicated that it was possible to measure with a high degree of reliability the attitudes of a teacher towards children and school work. The attitudes measured are those which predict the teacher's success in interpersonal relationships with children, his satisfaction with teaching and whether he is authoritarian or democratic in the educational setting.

Administration of the Instrument

Teachers new to the school district and to the experimental schools had been given the MTAI during the teachers' workshop held prior to the beginning of school in the fall of 1968.

On April 28, 1969 the MTAI was administered to all teachers in the three experimental schools. Two groups were included in the administration: one made up of 19 teachers who were new to the experimental schools in the fall of 1968; the second made up of 48 teachers who had been in the experimental schools since the beginning of the Teacher Aide Project in the fall of 1967. (This latter group had been given the MTAI in the fall of 1967 and again in the spring of 1968).

Data and discussions in the remaining portions of this chapter refer to the 48 teachers who were a part of the original group, unless reference is made to the contrary.

Hypotheses

Through the administration of the MTAI it was hoped to determine if teachers utilized aides to improve their own rapport with children. The hypotheses to be tested were as follows:

1. Teachers who had two years of experience in working with aides would have learned, through this experience, how to utilize aides effectively and thus, be able to improve their own teaching ability. This would be reflected by higher scores on the MTAI.
2. Increases in rapport among teachers who had two years experience with aides will appear in the several categories of teachers and in all situations regardless of the type of function performed by the aides or the length of time aides were utilized.
3. Teachers who were new to the school district and to the experimental schools in the fall of 1968 will have essentially the same level of rapport at the end of the school year as they had at the beginning of the school year. This will be evidenced by the similarity of the pre-test and post-test scores on the MTAI.
4. Teachers who were new to the school district and to the experimental schools in the fall of 1968 will have significantly lower scores in the spring testing than those teachers who had worked with aides for two years.

Limitations

Comparisons of scores on the MTAI administered in April, 1969 with the control schools for the same date were not possible. This was due to factors within the Grand Forks schools as well as schools in surrounding communities. A number of schools obtained district funds to hire aides for teachers or for clerical chores in the school offices. Organizations active with parents and schools arranged for volunteers to serve as aides in the schools. An expanding program of teacher education at the University of North Dakota placed undergraduate students majoring in elementary education in the elementary schools as aides. These three factors, often overlapping within a single school building, eliminated the possibility of continued use of the control schools. In some instances the former control schools had more hours per week of work by aides than had the experimental schools.

Presentation of Data

Seven tables have been selected to indicate the patterns of mean differences found in the MTAI.

Table I includes the 19 teachers who were new to the study in the fall of 1968 and the 48 teachers who had been included in the study since its inception in the fall of 1967.

The remaining six tables include only the 48 teachers who had worked with aides for two years.

New and Experienced Teachers. All teachers in the experimental schools are grouped together in Table I. This includes 48 teachers with two years of experience with aides and 19 teachers with only one year of such experience.

TABLE I

MEAN SCORES FOR ALL EXPERIMENTAL SCHOOL TEACHERS ON MTAI

Group	Fall 1967	Spring 1968	Fall 1968	Spring 1969
Experienced Teachers (from 1967)	30.60	36.44	n.a.*	49.87
N	77	77		48
New Teachers (from 1968)	n.a.	n.a.	22.53	48.07
N			19	19

* Not available

Teachers in the experimental schools who joined the staff in the fall of 1968 had post-test scores which were lower than those of the original teachers participating in the study. This difference is significant at the .01 level. The scores of the new teachers at the end of a single year of experience with aides differed little from the mean scores of those teachers who had two years of experience with aides..

Male-Female

Mean scores for the teachers with two years of experience with aides are presented in Table II. These scores are sub-divided into male-female and compared on the basis of the Spring, 1968 testing and the Spring, 1969 testing.

TABLE II

MEAN SCORES ON MTAI FOR MALES AND FEMALES IN EXPERIMENTAL GROUPS

Group	N	Mean 1968	Mean 1969	Adj. Mean 1968	Adj. Mean 1969
Experimental Males	16	34.00	43.37	36.63	48.10
Experimental Females	32	42.87	53.12	36.20	50.76

F - Mean, 1969 1.25

F - Adj. Mean, 1969 .15

Both males and females showed higher scores on the MTAI for the 1969 testing period. The difference was significant at the .01 level.

Teaching Experience. In Table III the data are divided according to the number of years of teaching experience for those teachers who began working with aides in 1967.

TABLE III

MEAN SCORES GROUPED ACCORDING TO THE YEARS OF EXPERIENCE FOR EXPERIMENTAL GROUPS

Group	N	Mean 1968	Mean 1969	Adj. Mean 1968	Adj. Mean 1969
Experience -<5 years	21	45.29	55.05	35.55	50.74
Experience - 5-9 years	12	36.00	50.75	36.40	53.89
Experience - 10 years^{+}	15	35.53	41.93	38.09	45.45

F - Mean, 1969 .93

F - Adj. Mean, 1969 .50

Scores for the 1969 administration of the MTAI were all considerably higher than for the same classification one year previous. This difference in mean scores was significant at the .01 level.

It is interesting to note that the least amount of rise in scores from one year to the next was for the group with ten or more years of experience. The two groups comprising less than ten years of experience showed quite similar increases in scores and these were considerably more than for the teachers with ten or more years of experience.

Amount of Preparation. The data in Table IV grouped the teachers who were involved since the study began in 1967 according to the amount of formal education which they had completed.

The first category of "up to 130 semester hours" included those teachers who had received a baccalaureate degree. The next category included those who had completed work beyond the Bachelor's Degree but who had not yet earned a Master's Degree. The third category of "155 semester hours and more" included those who had received a Master's Degree or had earned the equivalent number of hours.

TABLE IV

MEAN SCORES ON MTAI GROUPED ACCORDING TO THE NUMBER OF SEMESTER HOURS OF PROFESSIONAL PREPARATION FOR EXPERIMENTAL GROUPS

Group	N	Mean 1968	Mean 1969	Adj. Mean 1968	Adj. Mean 1969
Semester hours <130	15	44.00	58.93	35.33	55.74
Semester hours 131-155	20	39.65	48.65	33.86	48.86
Semester hours - 156+	13	35.62	41.31	41.89	44.68

TABLE III - continued

F - Mean, 1969	1.38
F - Adj. Mean, 1969	.89

Again a comparison between the test results of 1968 and 1969 show a higher score for the latter year. There was no significant difference among the scores in the 1969 administration of the MTAI.

Teachers who had completed the greatest amount of education showed the least rise in a mean score. The largest rise from 1968 to 1969 was the mean score for those teachers who had a Bachelor's Degree. The next largest rise was for those teachers who had completed some work past the Bachelor's level but who had not yet earned enough hours of university level work for a Master's Degree or its equivalent.

The difference in mean scores from 1968 and 1969 is significant at the .01 level.

Scores in Relation to the Mean. Table V provides data which indicates how the means ranked in relation to the over-all means on the MTAI scores on the 1969 administration of the instrument.

TABLE V

MEAN SCORES GROUPED AS ABOVE OR BELOW THE MTAI MEAN

Group	N	Mean 1968	Mean 1969	Adj. Mean 1968	Adj. Mean 1969
Exp. Tea. < MTAI Mean	25	27.44	32.80	39.71	39.38
Exp. Tea. > MTAI Mean	23	53.48	68.43	33.04	61.28

TABLE V - continued

F - Mean, 1969	30.34
F - Adj. Mean, 1969	9.23

The mean score received by teachers who were below the mean in the 1969 administration of the MTAI was slightly lower than comparable data for 1968.

Table VI provides additional data as to how the means ranked in relation to the over-all mean on the MTAI scores which resulted from the 1969 administration of the instrument.

The first category is the mean score of those who were more than one-half standard deviation below the mean. The second category is the mean score of those who were between one-half standard deviation below the mean and one-half standard deviation above the mean. The third category includes those who were higher than one-half standard deviation above the mean.

TABLE VI

MEAN SCORES ON THE MTAI OF EXPERIMENTAL TEACHERS
GROUPED ACCORDING TO THREE LEVELS OF SCORES

Group	N	Mean 1968	Mean 1969	Adj. Mean 1968	Adj. Mean 1969
Exp. Tch. $< \frac{1}{2}$ SD $<$ MTAI $\bar{X}$	16	27.06	31.06	45.42	38.57
Exp. In Between	21	41.52	49.76	35.87	48.82
Exp. Tch. $> \frac{1}{2}$ SD $>$ MTAI $\bar{X}$	11	55.55	77.45	27.05	68.32

F - Mean, 1969	13.02
F - Adj. Mean, 1969	5.65

Of the data presented in this chapter, Table VI includes the only instance where a mean score in the 1969 testing period was obviously lower than the comparable mean score in the 1968 administration of the MTAI. The mean score received by teachers whose scores were lower than one-half standard deviation below the mean was lower in 1969 than it was in 1968.

In comparing Tables V and VI, it would appear that teachers with the lowest scores in 1968 tended to obtain still lower scores in 1969.

The differences in the 1968 and 1969 scores was significant at the .01 level.

Aide Usage. In Table VII the data are grouped according to the usage made of the aides by the teachers.

TABLE VII

MEAN SCORES ON MTAI GROUPED ACCORDING TO WHETHER EXPERIMENTAL TEACHERS USED AIDES FOR CLERICAL OR INSTRUCTIONAL PURPOSES

Treatment	N	Mean 1968	Mean 1969	Adj. Mean 1968	Adj. Mean 1969
Exp. Clerical	28	38.11	46.54	37.63	47.12
Exp. Instruction	9	41.56	54.44	35.24	52.62

F - Mean, 1969	.57
F - Adj. Mean, 1969	.40

As in the majority of cases discussed in this chapter there was a noticeable rise in mean scores for 1969 when compared to the 1968 mean scores.

No significant difference was found between the two categories for the 1969 scores. The difference in mean scores between the 1968 administration and the 1969 was significant at the .01 level.

It is interesting to note that the greatest difference between scores in Table VII is in the "instructional usage" category. This would tend to indicate that those teachers who used aides primarily for tasks related to instruction not only had the highest level of rapport as measured by the MTAI but also had the greatest increase in rapport from the previous year.

Both male and female teachers in the experimental schools had a higher level of rapport with pupils and were less authoritarian at the end of the second year of the study than at the end of the first year.

During the second year of the study all teachers, regardless of the amount of their experience, became less authoritarian. There was no statistically significant difference among the teachers according to the amount of their experience. The least improvement (change in the direction of more rapport being considered as desirable) however, was found among those teachers with ten or more years of experience.

All teachers, regardless of the amount of formal preparation, increased their rapport during the seond year of the study. The greater the amount of formal education obtained by the teachers the less apparent was the rise in the level of rapport with pupils.

Teachers with a low score tended to have less rapport at the end of the second year than the first year. The converse also appeared to be true. Teachers with high scores on the MTAI tended to have higher scores at the end of the second year than they had at the end of the first year of study.

Rapport with students increased regardless of whether the aides were used for instructional or clerical activities. The greatest rise, however, was noted among those teachers who used aides primarily for instruction-related activities.

From the data gathered it appears that teachers increase in rapport with pupils as they gain more experience in working with and utilizing aides. This higher level of rapport, found after an additional year of contact with aides, is least apparent among teachers with the greatest preparation and length of service.

Teachers who were new to the school system and to the experimental schools had an increase in mean scores during a single year which was comparable to the rise obtained over a two-year period by the other teachers. It is possible that the techniques of utilizing aides effectively were disseminated to the new teachers by the experienced teachers. However, additional research appears desirable in this particular area.

Summary

The emphasis in education is moving from what the teacher does to what happens to the learner. Rather than being a performer the teacher is, more and more, being seen as a person who guides the learner into activities which will best insure his success. The educational process is then viewed as being concerned with "learning" rather than "teaching." With the emphasis on the learner,desirable instructional practices must grow out of the attitudes held by the teacher towards pupils and the educational process.

It was assumed that by measuring the attitudes of teachers it would be possible to obtain an indication of practices being carried on in the classroom. The MTAI was the instrument utilized to obtain this measurement of attitudes.

Recommendations

The MTAI has been used for two years. The first use was to determine differences between a control and an experimental population. The second year the measure was change-over-time with this experimental group. It would appear that further comparison would furnish little additional information. Therefore, its further use is problematical.

SECTION F

TEACHER ACTIVITY INSTRUMENT STUDY

Objectives

The Teacher Activity Instrument (TAI) was designed to measure expected change on two dimensions; first, to search for change in the amount of time teachers reported they spent carrying out certain tasks related to teaching; and second, to assess change in perceptions of teachers relative to the types of activities which could be assigned to aides. It was obvious that teachers could not be expected to assign discrete hour values for the amounts of time which each activity consumed; thus a five point scale, beginning with the term "very often," (1) and progressing through "never," (5) was employed to arrive at comparative time usages. The same scale was applied to statements relative to the amount of time a given activity might be assigned to a paraprofessional.

The data were analyzed in terms of change over time by the teachers who were using aides. The major question was whether the change continues to increase from year to year, of if change occurs during the initial year of working with aides and is, in effect, non-linear over time.

Development of the Instrument

The initial step in the construction of the instrument, a copy of which may be found at the conclusion of this section, was to analyze the duties of the teacher and to divide these duties into logical sub-divisions. Next, under each sub-division was placed a series of cogent statements which were to be rated by the teachers. Teachers were asked to rate each statement on two scales titled: (1) I conduct the activity described . . . . and (2) This task could be assigned to other non-instructional personnel. Each respondent was requested to circle the number from one to five which most nearly fit his perception for each item.

Several items from the original instrument were deleted as non-applicable during the 1968-69 administration. A number of minor changes in wording were made as well.

Data Collection Procedures

The instrument was administered to the new teachers in each of the experimental schools during the pre-school workshop in August, 1968. The next administration of the instrument was in May, 1969, when all teachers in the experimental schools responded to the TAI.

A program which ranked the items in terms of a mean score for the teachers who were in the experimental group for two years was developed. The new teachers were also ranked on the September, 1968 and May, 1969 administrations. In the Teacher Aide Inventory scaling system, a low mean score on an item was interpreted as meaning either teachers "do this very often" or "would assign to a paraprofessional often." A high score would be the "never assigned to aide" end of the continuum.

A Spearman Rank Correlation Statistic reported the relative scores by which the two administrations (Spring, 1968 and Spring, 1969 for the experienced teacher, and Fall, 1968 and Spring, 1969 for new teachers) could be compared to assess the degree to which one set of ranks corresponded to the other.

Fifty-four experienced teachers responded to the TAI in Fall, 1967, Spring, 1968 and Spring, 1969. A series of related 't' tests (see Section A for description) was used to search for differences between the (1) Fall, 1967 and Spring, 1968 administrations, and (2) between the Spring, 1968 and Spring, 1969 administrations. Ten new teachers were matched on Fall, 1968 and Spring, 1969. In addition, 't' tests were performed on breakdown by sex, teaching experience, MTAI score, degree status and aide usage among the experienced teachers. However, the N number of the new teachers was considered too small to perform 't' tests on the internal variables of this group.

Hypotheses

Hypotheses to be tested in this section concern the TAI scale, "This task could be assigned to other non-instructional personnel."

1. The Spearman Rank Correlations for Spring, 1968 and Spring, 1969 will be higher than those for Fall, 1967 and Spring, 1968 on the scales.
2. The Spearman Rank Correlations for new teachers for Fall, 1968 and Spring, 1969 will be lower than the Spring, 1968 and Spring, 1969 for the experienced teachers.
3. Among experienced teachers, there will be no significant difference in mean scores between the Spring, 1968 and Spring, 1969 administrations on the first 32 items of the TAI scale.
4. Among new teachers, there will be no significant difference in mean scores between the Fall, 1968 and Spring, 1969 administration on the first 32 items of the TAI scale.

Presentation of the Data

Two methods were used to present the data. The first was a series of tables which arrayed the item number, the rank of the item, mean score, and the difference in rank between administrations of the TAI. Second were a series of related and non-related 't' tests on the first thirty-two items of the scale "This test could be assigned to other non-instructional personnel."

Data Relevant to Hypotheses One and Two

The tables in the first section provide data relative to acceptance or rejection of the first and second hypotheses. To properly interpret the data, one must note that the items with the lowest mean score and ranked highest in rank order. Thus, a high rank order would mean that the teachers felt that they would not often assign this task to other non-instructional personnel (see sample TAI at the conclusion of this section). A high rank order correlation from Spring, 1968 to Spring, 1969 would indicate little overall mean change during the second year that a teacher worked with aides, although there may have been individual items which means change significantly.

Table I presents the rank order data for the Spring, 1968 to Spring, 1969 for all teachers on the scale "This task could be assigned to other non-instructional personnel."

TABLE I

RANK ORDER AND MEANS ON THE SPRING 1968-SPRING 1969 EXPERIENCED TEACHERS' ADMINISTRATION OF THE SCALE "THIS TASK COULD BE ASSIGNED TO OTHER NON-INSTRUCTIONAL PERSONNEL"

	Spring 1968		Spring 1969		
Item	Means	Rank	Means	Rank	Rank Difference
1	4.000	6	3.818	6	0
2	3.840	8	3.691	7	1
3	3.824	9	3.615	9	0
4	4.093	5	3.846	5	0
5	2.729	20	2.782	20	0
6	4.387	2	4.346	2	0
7	3.400	15	3.667	8	7
8	2.855	19	2.321	23	-4
9	2.141	30	1.947	28	2
10	2.366	26	2.161	27	-1
11	4.629	1	4.145	3	-2
12	4.629	1	4.145	3	-2
13	1.847	36	1.518	38	-2
14	1.494	40	1.228	40	0
15	1.776	39	1.614	36	3
16	1.988	33	1.667	35	-2
17	4.178	4	4.389	1	3
18	2.035	32	1.768	32	0
19	2.382	25	1.945	30	-5
20	1.859	35	1.691	33	2
21	2.048	31	1.673	34	-3
22	2.512	23	2.246	25	-2
23	2.288	27	2.304	24	3
24	2.676	21	3.127	13	8
25	2.176	29	2.222	26	3
26	1.843	38	1.600	37	1
27	1.381	42	1.145	42	0
28	1.405	41	1.196	41	0
29	1.845	37	1.455	39	-2
30	2.456	24	2.519	21	3
31	1.915	34	1.870	31	3
32	2.662	22	2.382	22	0
33	2.662	22	2.382	22	0
34	3.958	22	2.382	22	0
35	3.958	22	2.382	22	0
36	2.662	22	2.382	22	0
37	3.958	7	3.222	12	-5
38	3.958	7	3.222	12	-5
39	3.408	14	3.044	16	-2
40	3.408	14	3.044	16	-2
41	3.540	12	3.077	14	-2
42	4.260	3	3.980	4	-1

The data on 42 items in the Fall, 1967 - Spring, 1968 administration (Table F-7 first year report) produced a Spearman r' of .952, while the r' statistic on the Spring, 1968 - Spring, 1969 data was .971. Clearly there was greater rank agreement, which would indicate less change in teachers during the second year than during the first, thus the first hypothesis was supported. The greatest individual change occurred on Item 7, which meant that teachers in Spring, 1969 reported that they were less willing than before to aasign classroom presentations to aides.

The data in Table II rank the responses of the new teachers on the Fall, 1968 administration compared to their responses on the Spring, 1969 administration.

These data can be compared to the teacher group in Fall, 1967 and Spring, 1968 as well as to the experienced teachers in Spring, 1968 and Spring, 1969. In the first instance, the Spearman Rank Correlation for Fall, 1967 and Spring, 1968 (see Table F-7 in the 1967-68 report) was .952. The similar statistic for new teachers in Fall, 1968 and Spring, 1969 was .935.

In relation to experienced teachers in 1968-69, the rank correlation was r' = .971. The new teachers exhibit a lower correlation coefficient as might be anticipated.

The final table on the scale "This task could be assigned to other non-instructional personnel," compares new teachers on their second administration to the Spring, 1968 of all experienced teachers. The r' again can be compared to experienced teachers.

The r' for new teachers was lower than for the experienced teachers, however, if one applies a 't' test to the two r' scores, the result indicates

TABLE II

RANK ORDER AND MEANS ON THE FALL 1968-SPRING 1969 NEW TEACHERS' ADMINISTRATION OF THE SCALE "THIS TASK..."

	Fall 1968		Spring 1969		
Item	Means	Rank	Means	Rank	Rank Difference
1	3.611	12	4.000	6	6
2	4.000	3	4.103	4	-1
3	3.833	9	3.966	7	2
4	3.389	16	4.036	5	11
5	3.889	7	3.207	12	-5
6	4.056	2	4.642	1	1
7	2.722	24	3.500	8	16
8	2.556	25	2.586	23	3
9	2.667	10	2.069	31	-6
10	3.722	1	2.172	28	-18
11	4.333	1	4.241	2	-1
12	4.333	35	4.241	2	-1
13	1.833	41	1.800	36	0
14	1.556	37	1.233	42	-1
15	1.778	19	1.759	38	-1
16	3.235	17	1.724	39	-20
17	3.352	29	4.214	3	14
18	2.235	23	2.034	33	-4
19	2.778	33	2.276	27	-4
20	2.052	35	2.034	32	1
21	1.833	31	1.964	34	1
22	2.222	18	2.400	24	7
23	3.278	28	2.100	30	-12
24	2.333	38	3.037	17	11
25	1.611	40	2.379	25	13
26	1.556	42	1.759	37	3
27	1.333	39	1.275	41	1
28	1.556	30	1.344	40	-1
29	2.222	34	2.103	29	1
30	1.833	32	2.828	18	16
31	2.210	15	2.310	26	6
32	3.389	15	2.621	22	-7
33	3.389	15	2.621	22	-7
34	3.389	15	2.621	22	-7
35	3.389	15	2.621	22	-7
36	3.389	15	2.621	22	-7
37	3.556	13	3.125	16	-3
38	3.556	13	3.125	16	-3
39	3.938	5	3.348	9	-4
40	3.938	5	3.348	9	-4
41	3.941	4	2.727	19	-15
42	3.889	6	3.167	14	-8

TABLE III

RANK ORDER AND MEANS ON THE SPRING 1968 EXPERIENCED TEACHERS' AND SPRING 1969 NEW TEACHERS' ADMINISTRATIONS OF THE SCALE, "THIS TASK..."

	Experienced Teachers		New Teachers		
Item	Means	Rank	Means	Rank	Rank Difference
1	4.000	6	4.000	6	0
2	3.840	8	4.103	4	4
3	3.824	9	3.966	7	2
4	4.093	5	4.036	5	0
5	2.720	20	3.207	12	8
6	4.387	2	4.642	1	1
7	3.400	15	3.500	8	7
8	2.855	19	2.586	23	-4
9	2.141	30	2.069	31	-1
10	2.365	26	2.172	28	-2
11	4.629	1	4.241	2	-1
12	4.629	1	4.241	2	-1
13	1.847	36	1.800	36	0
14	1.494	40	1.233	42	-2
15	1.776	39	1.759	38	1
16	1.988	33	1.724	39	-6
17	4.178	4	4.214	3	1
18	2.035	32	2.034	33	-1
19	2.383	25	2.276	27	-2
20	1.859	35	2.034	32	3
21	2.047	31	1.964	34	-3
22	2.512	23	2.400	24	-1
23	2.288	27	2.100	30	-3
24	2.676	21	3.037	17	4
25	2.176	29	2.379	25	4
26	1.843	38	1.759	37	1
27	1.380	42	1.276	41	1
28	1.405	41	1.345	40	1
29	1.845	37	2.103	29	8
30	2.456	24	2.828	18	6
31	1.915	34	2.310	26	8
32	2.662	22	2.620	22	0
33	2.662	22	2.620	22	0
34	2.662	22	2.620	22	0
35	2.662	22	2.620	22	0
36	2.662	22	2.620	22	0
37	3.958	7	3.125	16	-9
38	3.958	7	3.125	16	-9
39	3.408	14	3.348	9	5
40	3.408	14	3.348	9	5
41	3.541	12	2.727	19	-7
42	4.260	3	3.167	14	-11

the difference is significant at the .05 level which may be interpreted to mean that after one year, the new teachers have become as sophisticated about using aides as the teachers who are in their second year with aides. Examination of the data lead the researcher to accept the second hypothesis.

Data Relevant to Hypotheses Three and Four

The second portion of the analysis of the TAI dealt with reporting the data relevant to the third and fourth hypotheses. The concern was with the linearity of perceived change when measured over time on the criterion of whether more duties could be assigned to non-instructional personnel.

Comparisons of mean scores over time within the experimental group were not done in the previous report. The focus of that report was to search for change between control and experimental groups. Thus, the data in this report will span both years.

The responses for the teachers who had been involved in the study since its inception were paired in the following manner: Spring 1968 - Spring 1969, Fall 1967 - Spring 1968. In addition, there were a number of comparisons based on variables such as sex, experience, aide usage, etc.

Table IV summarizes the means on the Fall 1967 - Spring 1968 administrations of the teachers who have been in the study both years. The teacher cards were paired and a related 't' test run, and the mean of the difference between the forty-one pairs will be reported.

The overall mean difference closely approached significance, and certain categories showed significant differences. One might note that the mean scores were higher in the seco[illegible] administration than in the first, which results in a negative difference in mean. This indicates that teachers believed that more duties could be assigned to aides before they had worked

TABLE IV

PAIRED MEAN DIFFERENCE AND RELATED 't' SCORES ON THE FALL 1967-SPRING 1968 EXPERIENCED TEACHERS' ADMINISTRATION OF THE SCALE "THIS ACTIVITY COULD BE ASSIGNED TO OTHER NON-INSTRUCTIONAL PERSONNEL"

CATEGORY	N	MEAN OF DIFFERENCE	STANDARD DEVIATION OF DIFFERENCE	STANDARD ERROR OF DIFFERENCE	SCORE
Overall	74	-4.120	18.150	2.110	-1.953
Males	22	-2.635	21.650	3.397	-1.649
Females	52	-5.408	19.445	2.697	-2.006*
EXPERIENCE					
Less Than 5 Years	22	-8.955	17.369	3.703	-2.418*
5-9 Years	32	-3.592	21.844	3.862	-0.930
10+ Years	20	-1.363	19.813	4.430	-0.308
DEGREE STATUS					
Less Than 130 Hours	38	-6.630	16.866	2.736	-2.423*
131-155 Hours	13	-6.610	20.700	5.741	-1.151
156+ Hours	23	-0.059	24.211	5.048	-0.012
REPORTED AIDE USAGE					
Rarely Used Aides	10	-0.168	24.424	7.723	-0.022
2-4 Hours Per Week	39	-3.630	18.479	2.959	-1.227
5+ Hours	20	-7.441	21.845	4.885	-1.523

* Means significant at .05

with them than after they had worked with aides for a year.

Females, teachers with little experience, and those with less than a bachelor's degree changed significantly in mean. Each of these groups had a higher mean on the second administration.

The TAI was administered in Spring, 1969 and the score was compared to Spring, 1968. The number of teachers who were still in the experimental schools at the end of the second year was 58. Table V reports the overall mean difference between the paired respondents.

No significant difference appeared on the overall means. Only the teachers who reported using aides from two to four hours per week had a significant change, and this was toward the direction of assigning aides to less duties in 1969 than in 1968.

The third null hypothesis was accepted. It appeared clear that no linearity of change could be determined on the scale "this activity could be assigned to other non-instruction personnel."

TABLE V

PAIRED MEAN DIFFERENCES AND RELATED 't' SCORES ON THE SPRING 1968-SPRING 1969 EXPERIENCED TEACHERS' ADMINISTRATION OF THE SCALE "THIS ACTIVITY COULD BE ASSIGNED TO OTHER "NON-INSTRUCTIONAL PERSONNEL"

CATEGORY	N	MEAN OF DIFFERENCE	STANDARD DEVIATION OF DIFFERENCE	STANDARD ERROR OF DIFFERENCE	SCORE
Overall	58	-3.821	22.768	2.990	-1.278
Males	22	-0.699	21.588	4.603	-0.152
Females	36	-5.729	23.553	3.926	-1.459
EXPERIENCE					
Less Than 5 Years	17	-4.318	24.519	5.947	-0.726
5-9 Years	26	-1.765	14.426	2.829	-0.524
10+ Years	15	-6.820	32.158	8.303	-0.821
DEGREE STATUS					
Less Than 130 Hours	26	-3.046	22.668	4.445	-0.685
131-155 Hours	13	-0.429	16.355	4.536	-0.095
156+ Hours	19	-7.202	26.989	6.192	-1.163
REPORTED AIDE USAGE					
Rarely Used Aides	15	6.486	16.449	6.217	1.043
2-4 Hours Per Week	26	-10.485	25.331	4.968	-2.111*
5+ Hours	18	1.083	16.613	3.916	0.277

* Means significant at .05

The mean scores for the new teachers were compared to mean responses from the experienced group in Spring, 1969, from Fall, 1968 to Spring 1969, for their own group, and between the Spring, 1968 experimental and Fall, 1969 new teacher score. Table VI reports the data for the 't' scores.

TABLE VI

MEAN SCORES AND 't' VALUES FOR EXPERIENCED AND NEW TEACHERS ON THE FIRST 32 ITEMS OF THE TAI SCALE, "THIS TASK COULD BE ASSIGNED TO NON-INSTRUCTIONAL PERSONNEL"

ADMINISTRATION	POPULATION	MEANS	't' SCORE
Spring 1968	Experienced	67.900	1.666
Fall 1968	New	76.158	N.S.
Fall 1968	New	80.957	0.840
Spring 1969	New	81.079	N.S.
Spring 1969	Experienced	75.833	1.206
Spring 1969	New	80.862	N.S.

Mean scores indicated that the new teachers were somewhat less willing to allow aides to share in instructional and supervisory tasks after having worked with aides for approximately an academic year. The difference was not significant, however. The lack of significance allows one to accept the null hypothesis stating that there would be no significant difference in mean scores of new teachers between the Fall, 1968 - Spring, 1969 administration on the scale "this task could be assigned to non-instructional personnel."

Summary

The thrust of this section was to search for linearity of change in terms of the perceptions of teachers about the duties which could be assigned to aides. Two statistical procedures, the Spearman Rank Order Correlation and the 't' Test were employed to determine changes.

There were some rank order changes evident, but they were not significant among the experienced teachers. The new teachers exhibited greater numbers of rank order change, but the change from Fall to Spring was not significant. The only significant rank order change occurred when new teachers on the Spring,1969 administration were compared to ex perienced teachers on the Spring,1968 administration.

The second part of this section dealt with mean change over time. The data revealed no significant overall change between Fall, 1967 and Spring, 1968 nor between Spring, 1968 and Spring, 1969 administrations among experienced teachers.

New teachers did not exhibit significant mean change when compared against themselves from Fall, 1968 to Spring, 1969, nor when compared against experienced teachers in either Spring, 1968 or Spring, 1969. Thus, one may conclude that if change occurred, it did not conform to a linear pattern. This was the case for both new teachers and those who had been in the study.

Recommendations

It would appear that the research capabilities of this instrument are exhausted. Further study is inadvisable.

TEACHER ACTIVITY INSTRUMENT

We are attempting to evaluate how teachers view the various activities that they are engaged in. If you would scan all the items in this instrument before attempting to respond, you may save considerable time in the completion of this instrument. Please add activities you conducted which are not enumerated under any of the six major headings. PLEASE CHECK A RESPONSE TO EVERY ITEM. ANSWER BOTH COLUMNS.

The following code for responses is found on the left hand side of the paper:

1 2 3 4 5 where: 1 means Very often
2 means Often
3 means Sometimes
4 means Seldom
5 means Never

Please respond to each item by circling the response which comes closest to your own position: i.e., if you conduct an activity "very often" circle ①

I conduct the activity described					This task could be assigned to other non-inst. personnel					
										A. DIRECT INSTRUCTION TASKS
1	2	3	4	5	1	2	3	4	5	1. Lecture and/or class discussion.
1	2	3	4	5	1	2	3	4	5	2. Planning lessons, developing and selecting materials.
1	2	3	4	5	1	2	3	4	5	3. Grading subjective examinations.
1	2	3	4	5	1	2	3	4	5	4. Individual student conferences (instructional matters).
1	2	3	4	5	1	2	3	4	5	5. Previewing instructional materials (films, tapes, text materials, library materials).
1	2	3	4	5	1	2	3	4	5	6. Grade determination (for reporting to parents, records).
1	2	3	4	5	1	2	3	4	5	7. Classroom presentations or demonstrations.
1	2	3	4	5	1	2	3	4	5	8. Supervising laboratory exercises.
										B. RELATED INSTRUCTIONAL TASKS
1	2	3	4	5	1	2	3	4	5	9. Grading objective examinations.
1	2	3	4	5	1	2	3	4	5	10. Grading workbooks.
1	2	3	4	5	1	2	3	4	5	11. Student conferences (personal).

1 2 3 4 5	Not applicable	12. Conferences with parents, other staff (including principal, counselor, teachers) related to students or course/grade taught.
1 2 3 4 5	1 2 3 4 5	13. Preparation of bulletin board, displays, mock-ups.
1 2 3 4 5	1 2 3 4 5	14. Mechanical preparations of materials--cutting out pictures, typing materials, running ditto machine, dry mount press, thermofax, etc. Setting up lab equipment, tape recorder, arranging furniture, etc.
1 2 3 4 5	1 2 3 4 5	15. Securing materials or aids- checking out audio-visual equipment, reading labs, special materials.
1 2 3 4 5	1 2 3 4 5	16. Operation of audio-visual equipment.
1 2 3 4 5	1 2 3 4 5	17. Referral services--summer school, special education, psychological services.
1 2 3 4 5	1 2 3 4 5	18. Assisting students individually with special equipment (listening stations labs, library).
		C. ADMINISTRATIVE TASKS
1 2 3 4 5	1 2 3 4 5	19. Recording--report cards, deficiency reports, permanent records, health information.
1 2 3 4 5	1 2 3 4 5	20. Scoring standarized tests, charting student profiles.
1 2 3 4 5	1 2 3 4 5	21. Reporting attendance, absence.
1 2 3 4 5	1 2 3 4 5	22. Taking inventory of materials and requisitioning more materials.
1 2 3 4 5	1 2 3 4 5	23. Filling out Federal cards and census reports.
1 2 3 4 5	1 2 3 4 5	24. Filling out administrative initiated reports or surveys.
1 2 3 4 5	1 2 3 4 5	25. Solicitation and/or collection of monies for charity drives and/or instructional materials.
1 2 3 4 5	1 2 3 4 5	26. Caring for hot lunch count-ticket sales.

		D. SUPERVISORY TASKS
1 2 3 4 5	1 2 3 4 5	27. Hall Duty-before, during or after school.
1 2 3 4 5	1 2 3 4 5	28. Hot lunch supervision.
1 2 3 4 5	1 2 3 4 5	29. Study hall or library supervision.
1 2 3 4 5	1 2 3 4 5	30. Gym supervision.
1 2 3 4 5	1 2 3 4 5	31. Playground supervision.
1 2 3 4 5	1 2 3 4 5	32. Regular classroom supervision (following direct instruction).
		E. PROFESSIONAL RESPONSIBILITIES
1 2 3 4 5	N. A.	33. GFEA, PDK, AAUW meetings or committee work.
1 2 3 4 5	N. A.	34. Regular staff meetings (including department meetings).
1 2 3 4 5	N. A.	35. Curriculum improvement meetings.
1 2 3 4 5	N. A.	36. Textbook selection.
1 2 3 4 5	1 2 3 4 5	37. In-service programs.
1 2 3 4 5	N. A.	38. University courses.
1 2 3 4 5	1 2 3 4 5	39. Professional reading.
1 2 3 4 5	N. A.	40. Student teaching supervision.
1 2 3 4 5	1 2 3 4 5	41. PTA attendance, American Education Week activities, special reports to groups regarding school activities.
1 2 3 4 5	1 2 3 4 5	42. Special assigned or elective tasks (non-reimbursed), building representative for specific purposes.
		F. MISCELLANEOUS
1 2 3 4 5	N. A.	43. Reimbursed extra-duty assignments (coaching, intramurals, dramatics, etc)
1 2 3 4 5	1 2 3 4 5	44. Non-reimbursed extra-duty assignments (chaperones, ticket-taking, ushering).
1 2 3 4 5	1 2 3 4 5	45. Attendance at special programs--music programs, concerts, athletic contests, etc.

1 2 3 4 5	1 2 3 4 5	46. Intercom interruptions.
1 2 3 4 5	1 2 3 4 5	47. Unscheduled visitations (guests, visitors, etc.).
1 2 3 4 5	1 2 3 4 5	48. Distribution of special notices.
1 2 3 4 5	1 2 3 4 5	49. Opening exercises.
1 2 3 4 5	1 2 3 4 5	50. Class elections, pep rallies, speci programs, unexpected schedule changes.

Please estimate the % of time spent in conducting the activities under each of the six major headings given above. The total of the six per cent figures should be 100% as shown.

_______% A. DIRECT INSTRUCTION TASKS
_______% B. RELATED INSTRUCTIONAL TASKS
_______% C. ADMINISTRATIVE TASKS
_______% D. SUPERVISORY TASKS
_______% E. PROFESSIONAL RESPONSIBILITIES
_______% F. MISCELLANEOUS

_______% TOTAL

SECTION G

PURDUE TEACHER OPINIONAIRE

Objectives

The investigators were interested in obtaining a measure of teacher morale as it related to the availability of teacher aides. Teachers who are happy, who are satisfied with their working conditions, can provide an invigorating instructional climate. School administrators have within their power the ability to provide the means for the greater utilization of those skills and knowledge unique to teaching. Teacher aides can provide relief from tasks which are simple, clerical in nature, and those which do not professional judgments. In addition, teacher aides can provide direct assistance so that the teacher can carry out more intensive as well as extensive instructional activities. When such conditions are present the morale of the teaching staff will be high; thus the instructional effectiveness of the teaching staff and faculty morale are related.

Development of the Instrument

The PTO (Purdue Teacher Opinionaire) has been developed within the past eight years. The first form appeared in 1961 and has been subsequently tested, revised and validated. Details of this instrument and its development are available in "Manual For the Purdue Teacher Opinionaire," by Ralph R. Bentley and Averno M. Rempel. (University Bookstore, 360 State Street, West LaFayette, Indiana).

The instrument provides a total score in addition to scores for ten separate factors of morale. The ten factors are as follows:

Teacher rapport with principal

Satisfaction with teaching

Rapport among teachers

Teacher salary

Teacher load

Curriculum issues

Teacher status

Community support of education

School facilities and services

Community pressures

The mean scores are converted to a stanine score for the purpose of making comparisons with norms established by the developers of the PTO. The norms were obtained from studies done with over 3,000 teachers in Indiana and Oregon.

Data Collection

The PTO was administered to all teachers in the experimental schools on April 28, 1969. On that date pupils were dismissed from school at noon. During the afternoon hours the investigators and their assistants administered the PTO to the teachers involved in the study.

Hypotheses

Through the administration of the PTO it was hoped to learn if there was a high level of morale among the teachers having aides and if there would be any differences among the various groupings of teachers.

1. There should be no difference in morale because of the categories

into which the teachers are grouped (male-female, usage of aides, amount of experience, amount of formal preparation).

2. Morale scores should be relatively high in all of the categories of the PTO. A high level of morale will be evident through the teachers' positive attitudes towards the schools' administration, the public, working conditions, and as they view their own status in the school and in the community.

Presentation of Data

Table I presents the mean scores for each of the ten factors making up the PTO.

TABLE I

MEAN SCORES FOR EACH FACTOR IN THE PTO

	Mean	Standard Deviation	Stanine
Teacher Rapport with Principal	65.08	13.86	5
Satisfaction with Teaching	70.29	10.55	5
Rapport among Teachers	47.78	7.90	6
Teacher Salary	21.31	4.27	6
Teacher Load	35.77	6.01	5
Curriculum Issues	15.78	3.06	5
Teacher Status	25.00	5.30	5
Community Support of Education	16.37	3.03	6
School Facilities and Services	16.00	3.63	6
Community Pressures	16.66	3.42	5

N = 87

Grouping each category according to various levels of experience or amount of preparation revealed no significant differences within the factors at the .05 level; consequently only the total scores for each category were reported. There were no significant differences at the .05 level among the scores for each of the various factors.

Grouping the PTO scores according to other factors produced no significant differences. These groupings included usage of aides, male-female, and ranking on the MTAI.

Summary

Teachers in the experimental schools tend to have the same mean scores on the various factors within the PTO regardless of the categories into which they are arranged.

On the basis of the results of the PTO it would appear that teachers in the experimental schools are about average, or slightly above average in their morale with the standardization sample for that instrument.

Recommendations

The Purdue Teacher Opinionaire does not appear to furnish information which is of sufficient value to warrant its further use. It is recommended that its use not be continued.

SECTION H

TEACHER AIDE EVALUATION

Objectives

The Teacher Aide Evaluation (TAE) was designed to provide an evaluation of each aide by the teachers with whom she worked. This evaluation was concerned with the overall and specific competencies displayed while working with the teachers and children. The purpose of the instrument is to reveal characteristics important in interpersonal relations between the aides and the children as seen by the teachers with whom the aides worked. Information was also sought concerning desirable traits for position compatibility.

Development of the Instrument

The Teacher Aide Evaluation was developed during the 1968-69 school year by personnel who directed the Implementation of the Teacher and His Staff Project and worked closely with administrators, teachers and the aides.

The evaluation is marked according to a six-point scale. The 20 characteristics selected were those most often listed by teachers in their subjective evaluations during the previous year and most often mentioned in conferences in which the utilization of aides was discussed.

Data Collection

The TAE was administered during the afternoon of April 28, 1969 to all teachers in the experimental schools. Pupils had been dismissed from school at noon and the afternoon hours were devoted to the collection of data pertinent to the study.

Limitations

The TAE was not subjected to statistical analysis for reliability or validation. The original intent of the instrument was not to produce a sophisticated instrument of evaluation, but rather for personnel selection. It is included in this report as a method of aide evaluation by teachers, and for obtaining further direction in the selection of and training of aides.

Presentation of the Data

A six-point rating scale containing the following items was used in the TAE: 1, outstanding; 2, excellent; 3, superior; 4, good; 5, acceptable; and 6, unsatisfactory. Each teacher was asked to evaluate the aides with whom he worked.

The mean score for each aide is presented in Table I. The means are listed in rank order starting with the highest (lowest score) rating.

TABLE I

MEAN SCORES OF AIDES IN RANK ORDER

Aide	Mean Score
0706	1.10
0606	1.41
0605	1.44
0601	1.46
0801	1.53
0603	1.56
0802	1.62
0702	1.76
0604	1.78
0704	2.09
0703	2.20
0602	2.23
0701	2.59
0705	4.71

N = 14
Mean = 1.96

The limited number of aides hindered a meaningful statistical analysis. However, it is interesting to note that two-thirds of the aides were ranked above the mean. Of the five aides below the mean, none were placed in the "unsatisfactory" category, thus the aide with the lowest rating was, at the minimum, "acceptable."

The individual ratings of the lowest ranked aide were examined to determine the "overall evaluation." On that particular item, this aide was given a mean rating of 4.25, with the highest rating accorded being a 3, "superior," and the lowest a 5, "acceptable." Thus, the relatively low rating of 4.71 by the teachers does not denote a person who can not function satisfactorily as an aide.

It should be emphasized that refined statistical analyses were not applied to the TAE because of (1) the nature of the instrument, (2) the development of the instrument, and (3) the number of cases involved. The number of teachers evaluating a single aide ranged from a low of three to a high of 27. Thus, the validity of the rating of any single aide compared to another aide was subject to question.

In Table II, the 20 characteristics of aides as evaluated by the teachers are listed in rank order.

TABLE II

MEAN RATING IN RANK ORDER OF AIDE CHARACTERISTICS

Characteristic	Mean
Cooperation	1.38
Dependability	1.44
Quality of work	1.50
Ability to work with teacher	1.55
Personal characteristics	1.65
Clerical skill	1.67
Enthusiasm	1.68
Overall evaluation	1.68
Quantity of work	1.72
General appearance	1.74
Adaptability	1.78
Emotional stability	1.82
Initiative	1.84
Resourcefulness	1.87
Punctuality and attendance	1.88
Judgment	1.97
Ability to communicate	1.98
Speech	2.00
Attitude toward job	2.01
Attitude toward children	2.04

Teachers as a group gave the highest rating to the willingness of the aides to cooperate, and the lowest rating to their attitude toward children. It should be emphasized that this "low" rating is relative, and on the scale denotes "excellence."

Several characteristics in the TAE might be altered, through a well planned training program, to increase the effectiveness of the aides, e.g., the attitude of the aides toward children may be altered through formal course work or in-service training sessions. Such work might help the aides to become more aware of the characteristics and the needs of elementary school-aged children and adolescents. The "ability to communicate" is a characteristic which might be improved with practice and training. This characteristic presents a problem in situations where lay people work in a professional environment; the language of the profession is often unknown to the outsider.

Of the ten lowest-rated characteristics, at least six are subject to change through instruction.

Summary

Results from the TAE would indicate that the selection processes and the training sessions used for aides were generally satisfactory. This was indicated by the relatively high ratings given to the aides by the teachers and that no aide was rated as "unsatisfactory."

The relative lower rating given to attitude towards children, attitude towards job, speech, and ability to communicate can be used to determine content of in-service sessions for aides.

Likewise such ratings given to judgment, resourcefulness, initiative, and emotional stability are areas to be especially alert to when interviewing prospective aides.

It is emphasized that these are relative ratings and that the lower ratings are not negative in light of the rating scale. It does, however, suggest areas that are a bit weak and therefore, should receive additional attention in future operation of the program.

Recommendations

It is recommended that the Teacher Aide Evaluation be included in further study. Its use as a predictor variable in determining reasons why teachers evaluate aides as they do bears further study.

GRAND FORKS PUBLIC SCHOOL DISTRICT #1

Teacher Aide Evaluation

Please complete the following form. Use one form for each aide who has worked with you. Please return to your principal before Friday, March 21

Name of aide______________________________

School______________________________

Date of Evaluation______________________________

Use the following rating scale:

1. Outstanding
2. Excellent
3. Superior
4. Good
5. Acceptable
6. Unsatisfactory
7. No opportunity to observe

Please circle the appropriate response.

1.	Speech	1	2	3	4	5	6	7
2.	Judgement	1	2	3	4	5	6	7
3.	Initiative	1	2	3	4	5	6	7
4.	Adaptability	1	2	3	4	5	6	7
5.	Enthusiasm	1	2	3	4	5	6	7
6.	Cooperation	1	2	3	4	5	6	7
7.	Dependability	1	2	3	4	5	6	7
8.	Quality of work	1	2	3	4	5	6	7
9.	Quantity of work	1	2	3	4	5	6	7
10.	General Appearance	1	2	3	4	5	6	7
11.	Ability to work with teacher	1	2	3	4	5	6	7
12.	Punctuality and attendance	1	2	3	4	5	6	7
13.	General Personality	1	2	3	4	5	6	7

Teacher Aide Evaluation (Continued)

14. Attitude toward children	1	2	3	4	5	6	7
15. Emotional Stability	1	2	3	4	5	6	7
16. Ability to Communicate	1	2	3	4	5	6	7
17. Resourcefulness	1	2	3	4	5	6	7
18. Attitude toward job	1	2	3	4	5	6	7
19. Clerical Skill	1	2	3	4	5	6	7
20. Overall Evaluation	1	2	3	4	5	6	7

Written Comment

1. List two areas in which this aide was especially strong.

2. In what one or two ways has the aide helped you the most.

3. Additional comments or observations

SECTION I

TEACHER AND AIDE PREDICTOR STUDIES

Objectives

A sizeable amount of information in each section had possible implications for other sections, if combined in a meaningful manner. The objectives of this section was to use data gathered for other sections and to attempt to determine what combination of variables might best predict: (1) which teachers would use aides in a meaningful manner, and (2) which aides would be expected to achieve the highest rating on their work by the teachers for whom they worked.

Teacher aides might be seen as a fairly expensive accourtement in a school. Their expense undoubtedly will make them a relatively scarce resource, and it is therefore, important that they be assigned to teachers who might be predicted to make the greatest use of them. One portion of this section will test several possible predictor variables with this utility aspect as an end.

The other portion of this section is concerned with the ratings which teachers assigned to the aides who worked for them. Each teacher rated the aides who worked with him on a series of criteria (see Teacher Aide Evaluation instrument at the conclusion of this section) which were used to arrive at a mean rating score. The mean scores were compared statistically to variables such as percentage of time an aide spent in certain work categories, age, experience, MTAI score, and others, to ascertain whether these variables could be used to determine why aides were rated as they were.

Development of the Instruments

No new instrument was developed for this section. Scores and other information from instruments previously cited were the basis for these analyses.

Data Collection Procedures

The procedures for data collection have been explained in detail in previous sections. The Teacher Aide Usage data came from the study on aide utility in Section C. The time each teacher used each aide in the various work categories was computed from the original computer print out which arrayed this data by item for each teacher.

The predictor variables came from the mean scores on the TAAI (Section D), the MTAI (Section E), and the ten sub-scales of the Purdue Teacher Opinionaire (Section G). Two other personal variables were used as predictors; namely sex of the teacher, and the years of experience of the teacher.

The predictor variables on the Teacher Aide Evaluation came from the aide utility/cost study (Section C) and the MTAI (Section E).

Hypotheses

The following hypotheses were tested:

1) There are not predictors, either singly or in combinations, which will predict the usage of aides by teachers.
2) Aide rating scores cannot be accurately predicted from the categories of time usage, sex, age, experience, or MTAI scores.

Limitations

The same limitations which affect the sections from which these data were originally reported still exist. Sample size clearly is the paramount limitation for the Teacher Aide Evaluation. The teacher study cannot be widely generalized due to the limited number of schools involved.

Presentation of the Data

This section is divided into two sub-sections: the first deals with the prediction of how teachers will use aides on the basis of several predictor variables; the second presents the correlations of the Teacher Aide Evaluation with several personal and test variables.

Prediction of Teacher Usage of Aides. The mean usage of teacher aides by the teachers in the time covered by this report was 95.37 hours. A question which seems worthy of an answer is: Can teacher aide usage be meaningful predicted? Also, what differences exist in the predictability of the various different categories of teacher aide usage? First, zero order correlations were found between the test variables and background variables and the various categories of teacher aide usage.

TABLE I

ZERO ORDER CORRELATION COEFFICIENTS

	CRITERION VARIABLES						
Predictor Variables	Clerical Out of Class	A-V	Clerical In Class	Supervision	Instruction	Other	Total
MTAI	-.11	.24	.01	.09	.22	.08	.09
Purdue Teacher Opinionaire (1) Teacher Rapport with Principal	.01	-.17	-.08	.02	-.03	-.01	-.02
(2) Satisfaction with Teaching	-.13	.05	.25	-.11	-.10	.03	-.10
(3) Rapport Among Teachers	-.04	-.09	-.20	-.13	.01	-.09	-.11
(4) Teacher Salary	.03	-.11	-.11	-.01	-.18	.04	-.06
(5) Teacher Load	-.03	.06	-.24	-.09	-.06	-.02	-.08
(6) Curriculum Issues	-.13	-.11	-.30	-.20	.01	-.14	-.20
(7) Teacher Status	-.02	.06	-.29	-.05	-.17	-.02	-.09
(8) Community Support	-.03	-.09	-.19	-.28	-.05	-.25	-.20
(9) School Facilities	-.02	-.16	-.30	-.12	-.05	-.03	-.11
(10) Community Pressures	.01	.09	-.12	-.23	.01	-.25	-.11
Sex	.09	.30	-.11	.09	.22	.13	.23
Experience	.04	.06	-.11	.10	.02	.07	.09
TAAI	.05	.20	.14	.04	.12	-.02	.12

An inspection of the previous table would give the impression that any precise prediction of teacher aide usage using these variables would seem out of the question. Sex would probably be the single best predictor. The TAAI would help, along with the MTAI. The Purdue Teacher Opinionaire seems generally unrelated, except perhaps in a negative sense.

To investigate these impressions further, the backward elimination procedure was used for each variable to determine a set of "best" predictors. This information is reported in the next six tables.

TABLE II

BACKWARD ELIMINATION PROCEDURE FOR VARIABLES RELATED TO TEACHER AIDE USAGE IN CLERICAL OUT OF CLASS ACTIVITIES

Step	Variable Eliminated	Multiple Correlation
1	None	.332
2	Experience	.332
3	Community Support	.332
4	Teacher Salary	.332
5	Teacher Rapport with Principal	.331
6	School Facilities	.328
7	Community Facilities	.325
8	Teacher Status	.318
9	Curriculum Issues	.303
10	TAAI	.281
11	Teacher Load	.256
12	MTAI	.234
13	Sex	.198
14	Rapport Among Teachers	.138
15	Satisfaction with Teaching	

It should be pointed out that in the backwards elimination procedure, the variables are eliminated in the reverse order of their contribution to prediction. Thus, satisfaction with teaching (as measured on the Purdue) is the most important prediction of Teaching Aide Usage in clerical - out of class activities. With this criterion, no multiple correlations were significant.

TABLE III

BACKWARD ELIMINATION PROCEDURE FOR VARIABLES RELATED TO TEACHER AIDE USAGE IN AUDIO-VISUAL MATERIALS AND EQUIPMENT

Step	Variable Eliminated	Multiple Correlation
1	None	.521
2	Teacher Rapport with Principal	.521
3	TAAI	.520 *
4	Teacher Load	.518 *
5	Teacher Status	.510 *
6	Curriculum Issues	.501 *
7	Experience	.493 **
8	Teacher Salary	.476 **
9	Rapport Among Teachers	.456 **
10	Satisfaction with Teaching	.440 **
11	Community Support	.422 **
12	Community Pressures	.399 **
13	School Facilities	.349 **
14	MTAI	.301 **
15	Sex	.301 **

* Significant at .05 level

** Significant at .01 level

The variable of sex was the single best predictor of teacher aide usage in audio-visual materials and equipment. Significance was obtained at step 7, and from there to the final step.

TABLE IV

BACKWARD ELIMINATION PROCEDURE FOR VARIABLES RELATED TO
TEACHER AIDE USAGE IN CLERICAL
IN CLASS ACTIVITIES

Step	Variable Eliminated	Multiple Correlation
1	Full	.535
2	Community Support	.535 *
3	MTAI	.533 *
4	Satisfaction with Teaching	.530 *
5	Teacher Load	.528 *
6	Sex	.521 **
7	Community Pressures	.521 **
8	School Facilities	.494 **
9	TAAI	.467 **
10	Rapport Among Teachers	.446 **
11	Teacher Rapport with Principal	.434 **
12	Teacher Salary	.390 **
13	Teacher Status	.359 **
14	Experience	.305 **
15	Curriculum Issues	

* Significant at .05 level

** Significant at .01 level

The variable of curriculum issues was the single best predictor of teacher and aide usage in clerical-in-class activities. It should be pointed out that curriculum issues actually had a negative correlation with the criterion. Significance at the .01 level was found at step 6 to the final step.

TABLE V

BACKWARD ELIMINATION PROCEDURE FOR VARIABLES RELATED TO TEACHER AIDE USAGE IN SUPERVISION

Step	Variable Eliminated	Multiple Correlation
1	Full	.504
2	Experience	.503
3	Teacher Load	.503
4	Curriculum Issues	.502 *
5	Community Pressures	.501 *
6	TAAI	.500 *
7	Satisfaction with Teaching	.489 *
8	Sex	.472 *
9	School Facilities	.448 *
10	Teacher Rapport with Principal	.424 *
11	Rapport among Teachers	.410 **
12	MTAI	.394 **
13	Teacher Status	.362 **
14	Teacher Salary	.276 **
15	Community Support	

* Significant at .05 level
** Significant at .01 level

The last remaining variable in the backward elimination procedures for teacher aide usage in supervision was community support. This is also a negative correlation. In general, this criterion is significant at the .05 level for most steps.

TABLE VI

BACKWARD ELIMINATION PROCEDURE FOR VARIABLES RELATED TO TEACHER AIDE USAGE IN INSTRUCTION

Step	Variable Eliminated	Multiple Correlation
1	Full	.523
2	School Facilities	.523
3	Community Support	.522 *
4	Community Pressures	.522 *
5	TAAI	.515 *
6	Experience	.511 *
7	Curriculum Issues	.502 **
8	Teacher Load	.490 **
9	MTAI	.479 **
10	Teacher Rapport with Principal	.469 **
11	Teacher Salary	.456 **
12	Rapport Among Teachers	.429 **
13	Satisfaction with Teaching	.342 *
14	Sex	.165
15	Teacher Status	

* Significant at .05 level

** Significant at .01 level

The last remaining variable was teacher status, which also had a negative correlation with the criterion. Sex was the last remaining positive correlation. Significance at the .01 level was found from steps 7 through 12.

TABLE VII

BACKWARD ELIMINATION PROCEDURES FOR VARIABLES RELATED TO TEACHER AIDE USAGE IN TOTAL USAGE

Step	Variable Eliminated	Multiple Correlation
1	None	.408
2	Teacher Status	.408
3	Teacher Load	.408
4	Curriculum Issues	.407
5	Satisfaction with Teaching	.406
6	Experience	.401
7	Community Pressures	.398
8	MTAI	.394
9	School Facilities	.387
10	Teacher Salary	.378 *
11	Rapport among Teachers	.366 *
12	TAAI	.356 *
13	Teacher Rapport with Principal	.318 *
14	Community Support	.229 *
15	Sex	

* Significant at .05 level

On what might be considered to be the most important criterion variable, total aide usage, sex is the most important predictor variable.

While there were several differences among the criteria, it seems clear that the most useful predictor was sex. This relatively easy portion of background data can be seen as a most important bit of information to gather. Explaining "why" females used teacher aides more often has not been thus far investigated. This should be a fruitful area for future research. To some extent, each of the seven criterion variances could be accounted for by the set of predictor variables. Considering total usage as a criterion, R = .408. Dropping all but five variables, R = .378, which is significant at the .05 level.

Correlation Data on the Teacher Aide Evaluation. This section is concerned with whether there is a significant correlation between the rating which teachers assigned the aides who worked for them and the categories into which their work fell. In addition, correlations were run on variables such as age, experience, educational attainment and MTAI score to determine if such variables had an effect on aide rating.

The data presented in Table VIII are the correlation coefficients of the several variables and the Teacher Aide Evaluation as well as the significance of each correlation.

TABLE VIII

CORRELATION COEFFICIENTS AND SIGNIFICANCE FOR WORK CATEGORIES, AGE, EDUCATION, EXPERIENCE AND MTAI SCORE

Category	Correlation Coefficient	Significance
A. Clerical-Out of Class	-.10777	not significant *
B. Supervision	-.10278	not significant
C. Instruction	.06246	not significant
D. Other (Miscellaneous)	.15124	not significant
Age	-.22908	not significant
Education	.21357	not significant
Experience	-.36125	not significant
MTAI Score	.09869	not significant

* Significant (.441) at .05 level

The work categories which held the highest mean percentage of time spent by aides did not exhibit a significant correlation with the mean aide rating. Thus, it appears that teachers do not rate aides by the type of service they perform. The same conclusions may be drawn for age of the aide, her educational attainment, experience as an aide, and score on the MTAI. Since less than 60 percent of the total variance in rating was accounted for by the above categories, it is clear that other factors play an important part in determining how teachers rate their aides.

Summary

The first objective of this section was to use statistical devices in an effort to determine whether it is feasible to determine those variables related to effective teacher usage of aides. The data have indicated that the sex of the teacher is positively correlated with total aide usage as well as use of the aide in activities classified as instructional. Instructional use of aides contributed to positive utility/cost relationships (see Section C). Some slight tendencies to positive aide usage appeared with the TAAI score and MTAI score; however, they were not significant correlations.

The second objective of this section was to determine whether the ratings assigned by teachers to the aides who worked for them correlated with the type of service the aide performed, or to several personal variables. The variables tested measured less than 60 percent of the variance in ratings, and no significant correlations were reported. Thus, no positive statements can be made relative to the basis for ratings by teachers.

Recommendations

The aide rating scale analysis should be repeated with a larger sample size.

GRAND FORKS PUBLIC SCHOOL DISTRICT #1

Teacher Aide Evaluation

Please complete the following form. Use one form for each aide who has worked with you. Please return to your principal before Friday, March 21

Name of aide____

School____

Date of Evaluation____

Use the following rating scale:

1. Outstanding
2. Excellent
3. Superior
4. Good
5. Acceptable
6. Unsatisfactory
7. No opportunity to observe

Please circle the appropriate response.

1. Speech	1	2	3	4	5	6	7
2. Judgement	1	2	3	4	5	6	7
3. Initiative	1	2	3	4	5	6	7
4. Adaptability	1	2	3	4	5	6	7
5. Enthusiasm	1	2	3	4	5	6	7
6. Cooperation	1	2	3	4	5	6	7
7. Dependability	1	2	3	4	5	6	7
8. Quality of work	1	2	3	4	5	6	7
9. Quantity of work	1	2	3	4	5	6	7
10. General Appearance	1	2	3	4	5	6	7
11. Ability to work with teacher	1	2	3	4	5	6	7
12. Punctuality and attendance	1	2	3	4	5	6	7
13. General Personality	1	2	3	4	5	6	7

Teacher Aide Evaluation (Continued)

14. Attitude toward children 1 2 3 4 5 6 7
15. Emotional Stability 1 2 3 4 5 6 7
16. Ability to Communicate 1 2 3 4 5 6 7
17. Resourcefulness 1 2 3 4 5 6 7
18. Attitude toward job 1 2 3 4 5 6 7
19. Clerical Skill 1 2 3 4 5 6 7
20. Overall Evaluation 1 2 3 4 5 6 7

Written Comment

1. List two areas in which this aide was especially strong.

2. In what one or two ways has the aide helped you the most.

3. Additional comments or observations

SECTION J

USAGE OF TEACHER AIDE INSTRUMENT STUDY

Objectives

This section continues the study of a self-reported summary of teacher time utilization. The same two approaches were utilized to study time reporting as were done in the 1968 evaluation: 1) general time utilization for instructional and non-instructional tasks, and 2) specific time utilization of teacher aides as reported by experimental school teachers. This section also contains tabulations of the frequency of aide utilization by the teachers for various tasks based on a summary by each teacher made in May, 1969. The reader must differentiate between this study, which is a summary of how teachers believed aides were being used, and Section C of this report, which is based upon actual time record daily utilization. There may be some discrepencies between the two sections, as this section represents opinions, while the other section represents actual reported data.

The correlation study of interrelationships which might exist between the various data collected concerning teachers was not repeated in 1968-69. It was replaced by a stepwise regression analysis of basically the same data items. A report of the results obtained when applying the stepwise regression analysis will be found in the Teacher Aide Attitude Inventory results (see Section D).

Development of the Instruments

One measure of perceived teacher time utilization was obtained from the final question on the Teacher Activity Instrument (TAI). This question asked about time utilization for six educational activities. Since these six activities were, in their broadest sense, all-inclusive of the tasks teachers might be called upon to perform, respondents were requested to report six percentage figures which would total one hundred percent.

A second instrument, Usage of Teacher Aides, also contained a question requesting teachers to check one of several categories for time utilization of aides. This question requested teachers to estimate their average time usage of aides per week over the past year, and should not be confused with the time and type of usage of the aides reported on a daily basis by the aides themselves. A report of the results of this latter study is contained in the section concerning the Teacher Aide Log.

The Usage of Teacher Aides instrument also contained a list of activities aides might perform which all teachers were to check indicating all ways in which they used aides and a question asking which of these activities constituted their major usage of the aides. The list of activities contained on this form was prepared by the Director of this project based on her contacts with teachers and aides in this project and her reading about other projects exploring the usage of teacher aides.

Administration Procedures

The TAI instrument was administered to new teachers during the pre-school workshop in the Fall of 1968. All teachers,including the new teachers, were readministered the instrument in the Spring of 1969. Also, in the Spring of 1969, the Usage of Teacher Aides instrument was administered to all teachers.

The control schools were not included in the study for the 1968-69 project year since their usefulness was contaminated when several of the schools added teacher aides to their faculty. But a new and more meaningful dimension was added to the study with the availability of data from over a two year period of time.

Hypotheses

The hypotheses pertinent to this study were:

1) No differences in time utilization of aides will exist when comparing responses of returning teachers in Spring, 1969 with their responses in Spring, 1968.
2) No differences in time utilization of aides by new teachers in 1968-69 will be found when compared with all teachers in 1967-68.
3) No differences will be found in the frequency of the various types of aide usage from Spring, 1968 to Spring, 1969.

The description of the statistical procedures used, chi-square, related 't' analysis of variance and analysis of covariance, will be found in the introduction to this evaluation report.

Presentation of the Data

Time Utilization as Measured by the Teacher Activity Instrument. (TAI) as the first measure of teacher time utilization, the following question was included in the Teacher Activity Instrument and completed by all new teachers in project schools who had access to teacher aides in September of 1968, and again by all teachers in May of 1969.

> Please estimate the percent of time spent in conducting the activities under each of the six major headings given below. The total of the six percent figures should be 100 percent as shown.

______% A. Direct Instructional Tasks
______% B. Related Instructional Tasks
______% C. Administrative Tasks
______% D. Supervisory Tasks
______% E. Professional Responsibilities
______% F. Miscellaneous
100 % TOTAL

The first comparison of interest was whether any significant changes in mean time spent for each of the six activities had occurred between Spring, 1968 and Spring, 1969. To answer this question and thus satisfy hypothesis (1), the responses of the 56 teachers employed both years in the project schools were analyzed using a related 't' test. The results of these statistical analyses are presented in Table I.

TABLE I

COMPARISON OF MEAN PERCENT OF TEACHER TIME DEVOTED TO SIX ACTIVITIES SPRING, 1968 TO SPRING, 1969 FOR 56 TEACHERS

	A	B	C	D	E	F
Spring, 1969	53.84	18.54	7.44	9.02	8.07	7.00
Spring, 1968	56.42	16.26	8.49	8.34	7.25	7.57
Related 't'	1.00	-1.48	-0.29	-0.71	-0.65	0.72

It is evident that the teachers reported a lower mean for (A), direct instructional tasks, and a higher mean for (B), related instructional tasks, in Spring, 1969 but none of the differences were significant.

In a further attempt to identify what changes in time usage of aides has occurred over the two years of the project, a comparison was made of the 45 teachers who responded to both the Fall, 1967 and Spring, 1968 administrations (see Table II).

TABLE II

COMPARISONS OF MEAN PERCENT OF TEACHER TIME DEVOTED TO SIX ACTIVITIES FALL, 1967 TO SPRING, 1968 FOR 45 TEACHERS

	A	B	C	D	E	F
Spring, 1968	56.22	16.42	8.31	7.98	7.21	7.38
Fall, 1967	50.18	17.85	11.42	9.55	7.95	6.42
Related 't'	-1.40	0.43	2.67*	1.31	0.61	-0.87

* Significant at or beyond the 0.05 level

Again, change was found for the activity (A), direct instructional tasks. In Fall, 1967 teachers reported an even lower mean time than they did in Spring, 1969 and much lower than in Spring, 1968 for this activity. Also, for activity (C) administrative tasks, the teachers were significantly lower in Spring, 1968 than in Fall, 1967 but reported more time devoted to this area again in Spring, 1969. From this rather ambiguous pattern, it is not possible to interpret the results or relate them to the presence of teacher aides. Certainly hypothesis (I) must be retained, based on the lack of significant differences.

When further comparisons of the paired data for Fall, 1967 to Spring, 1968 and Spring, 1968 to Spring, 1969 were made utilizing the variables of sex, semester hours of college completed, experience, reported hours of aide usage per week, type of usage of aides and MTAI scores, some interesting findings appeared. Tables III and IV respectively present the results of these comparisons.

TABLE III

MEAN DIFFERENCES BETWEEN FALL, 1967 AND SPRING, 1968 RESULTS FOR THE SIX ACTIVITIES

		A	B	C	D	E	F
1.	Males (20)	-3.900'	0.350'	2.100	-0.700	2.450	0.300
2.	Females (25)	-4.520	0.960	3.600*	3.760*	-0.600	-3.480
3.	< 130 Sem.Hrs. (12)	5.167	-4.500	2.250	-2.833	-2.167	2.917
4.	131-155 Sem. Hrs. (21)	-6.000	2.857	2.952	1.952	0.048	-2.571
5.	155+ Sem.Hrs. (12)	-10.583*	2.083	3.583	6.083*	4.917*	-5.167
6.	< 5 Yrs. Exp. (20)	2.850	-1.450	1.700	-1.000	-1.350	-0.450
7.	5-9 Yrs. Exp. (11)	-5.727	3.909	2.000	0.545	-0.273	-1.727
8.	10+ Yrs. Exp. (6)	-13.214*	1.214	5.429*	6.714*	4.571*	-3.786
9.	Rarely Use Aides (20)	-8.167	-2.500	5.667	-3.000	7.500	0.667
10.	2-4 Hrs./Week (20)	-1.350	-0.100	2.300	2.150	-1.150	-1.550
11.	5-9 Hrs./Week (13)	-5.000	5.231	-6.077	3.462	-0.154	-6.000
12.	Clerical Users (25)	-4.520	1.480	1.120	2.200	0.480	-0.160
13.	Instr. Users (10)	-3.800	-1.500	4.100	0.600	0.600	-2.000
14.	$< \frac{1}{2}$ SD $\leq \bar{X}$ MTAI (19)	-4.947	-2.211	2.000	1.368	3.105	1.421
15.	$\frac{1}{2}$ SD $< \bar{X} >$ $\frac{1}{2}$ SD (19)	-1.786	2.526	4.579*	2.421	-1.105	-6.579
16.	$> \frac{1}{2}$ SD $> \bar{X}$ MTAI (7)	-9.000	3.571	1.000	1.143	-0.571	2.429

* Significant at or beyond the 0.05 level.

' Negative sign indicates Spring, 1969 means are higher than Fall, 1967. Positive sign (or lack of sign) indicates the opposite is true.

Some findings for the comparisons of change in time usage between Fall, 1967 and Spring, 1968 as shown in Table III are:

1. More experienced teachers and teachers with more semester hours of college reported significantly more of activity (A), direct instructional tasks, and more activity (F), miscellaneous, while significantly less time for activities (C), administrative tasks (D), supervisory tasks, and (E), professional responsibilities, in the Spring of 1968.
2. As teachers reported using aides for more time, they also tended to report devoting more time to activities (C) and (F) and less time to (B) and (D) in Spring compared to Fall.

3. Those on either extreme of the MTAI reported greater time change favoring the Fall administration for activity (E) and favoring the Spring administration for activities (A) and (C).

Continuing with the analyzation of the time usage data obtained, the 58 teachers who responded to both the Spring, 1968 and Spring, 1969 administrations of the TAI instrument were compared using one-way analysis of covariance. The Spring, 1968 data served as the covariate with adjusted Spring, 1969 means the result. Variables considered when making these statistical comparisons included sex, experience, time usage of aides, type of aide usage and MTAI scores.

Outside of activity (D), supervisory tasks, no significant differences either on the adjusted or on the unadjusted means were found for any of the comparisons made. For activity (D), differences significant at or beyond the 0.05 level were found for the following variables: sex, type of aide usage, time usage of aides, MTAI score and experience.

TABLE IV

MEAN DIFFERENCES BETWEEN SPRING, 1968 AND SPRING, 1969 RESULTS FOR THE SIX ACTIVITIES

		A	B	C	D	E	F
1.	Males (22)	2.045'	-3.455'	0.182	1.182	-0.591	0.545
2.	Females (34)	2.706	-1.676	-0.559	-2.206	-0.647	1.265
3.	<130 Sem.Hrs.(16)	-2.250	-2.000	-0.500	3.063	0.0	-0.188
4.	131-155 (26)	1.538	-0.269	-0.423	-1.154	-0.308	0.269
5.	155+ Sem.Hrs. (14)	9.500*	-6.714	0.286	-4.857*	-1.929	3.643
6.	< 5 yrs. Exp. (26)	1.654	-1.500	0.269	0.346	-1.808	-0.346
7.	5-9 Yrs. Exp. (13)	0.385	-2.154	-1.308	0.154	2.538	0.308
8.	10+ Yrs. Exp. (17)	5.235	-3.882	-0.294	-3.529	-1.235	3.529
9.	Rarely use Aides (7)	-5.286	-1.000	2.571	3.000	0.143	0.429
10.	2-4 Hrs/Week (24)	1.667	-0.958	0.333	-0.625	0.333	-0.583
11.	5-9 Hrs/Week (15)	3.533	-4.867	-0.400	-2.133	-1.400	4.733
12.	Clerical Users (31)	3.645	-1.484	-0.613	-2.290	0.581	-0.161
13.	Instr. Users (12)	-2.083	0.417	1.750	1.000	-1.667	0.583
14.	$< \frac{1}{2}$ SD $\leq \overline{X}$ MTAI (24)	4.167	-4.042	0.500	0.792	-2.083	0.500
15.	$\frac{1}{2}$ SD $< \overline{X} \geq \frac{1}{2}$ SD (22)	0.091	-0.727	-0.818	-2.909	1.318	3.000
16.	$> \frac{1}{2}$ SD $> \overline{X}$ MTAI (10)	3.500	-2.000	-0.900	-0.400	-1.400	-2.300

* Significant at or beyond the 0.05 level

' Negative values indicate Spring, 1969 means are higher than Spring, 1968. Positive sign (or lack of a sign) indicates the opposite is true.

Only a few of the most obvious differences between groupings on the various variables will be noted. The reader can identify others by further study of the tables, noting that reversal of signs as well as mean differences are important.

Some findings for the comparisons of change in time usage between Spring, 1968 and Spring, 1969 as shown in Table IV are:

1. More experienced teachers and teachers with more semester hours of college reported less time devoted to (A), direct instructional tasks, and (F), miscellaneous, while more time to (B), related instructional tasks, and (D), supervisory tasks.
2. As teachers reported using aides for more time, they also tended to report time usage for the six activities in the same pattern shown in I.

3. Instructional users reported more time in Spring, 1969 compared to Spring, 1968 than clerical users for (A), direct instructional tasks.
4. Those on either extreme of the MTAI reported greater time change favoring 1968 for (A), direct instructional tasks, and favoring 1969 for (B), related instructional tasks.

Table V comparisons presents the mean responses for the significant.

TABLE V

MEAN RESPONSES FOR SIGNIFICANT COMPARISONS OF ACTIVITY (D), SUPERVISORY TASKS

Comparison	Variable Mean	ANOVA	ANCOV
1. $<$ 5 Yrs. Exp.	Clerical 11.7, Instructional 4.2	.05	.05
2. 5+ Yrs. Exp.	2-4 Hrs. Use 6.4, 5+ Hrs. Use 13.9	.05	.05
3. Female	2-4 Hrs. Use 7.8, 5+ Hrs. Use 15.6	.05	.05
4. $< \overline{X}$ MTAI	Rarely Use 9.7, 2-4 Hrs. 6.1, 5+ Hrs. 12.2	.05	.05
5. Clerical Usage	2-4 Hrs. Use 7.3, 5+ Hrs. Use 13.3	.05	.05

It would appear that clerical users of aides spent significantly more time in supervision, and the more they reported using the aides the more they appeared to supervise. Even more pertinent is the tentative conclusion that those reporting greater usage of aides appeared to also report significantly more time required for supervisory tasks. Until it is known whether these are professional or non-professional supervisory tasks that the teachers are reporting, this finding can be construed as positive or negative. Further study will be required to identify whether this is a favorable finding.

The next set of analyses concerns hypothesis (2). How do the responses from Fall, 1968 to Spring, 1969 of new teachers compare with Fall, 1967 to

Spring, 1968 responses? Table VI provides the answer to this question presenting the mean responses for new teachers with pre-reflecting Fall, 1968 and post-reflecting Spring, 1969 results. There were 19 new teachers in Fall and 30 new teachers in Spring.

TABLE VI

MEAN PERCENTAGE OF NEW TEACHER TIME DEVOTED TO SIX ACTIVITIES COMPARED TO 1967-68 RESULTS FOR ALL TEACHERS

	A		B		C		D		E		F	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1968-69 New Teachers	46.8	54.3	22.3	18.2	9.2	7.1	7.6	8.6	8.9	7.5	5.3	6.1
1967-68 All Teachers	51.2	56.5	17.7	18.2	9.7	8.1	10.0	6.4	7.9	7.3	6.6	7.3

The mean responses of the new teachers agree very closely with those of the 1967-68 teachers when comparing Spring or post-means. None of these comparisons approached significance when tested with a related 't'. Some difference does appear to exist between the Fall, 1967 and Fall, 1968 data. This difference results from more emphasis on (B), related instructional tasks, and correspondingly less emphasis on (A), direct instructional tasks by the new teachers. The resulting reductions in emphasis on activity (B) from pre to post and from Fall, 1967 to Fall, 1968 were significant at the 0.05 level. Considering hypothesis (2), the results presented indicate that this hypothesis should be retained since no significant differences exist between the new teachers and the 1967-68 teachers after an equivalent period of contact with the aides.

Time Utilization as Measured by the Usage of Teacher Aides Form. The second measure of time usage reflected specifically time usage of teacher aides. This information was gained by asking the following question of all experimental teachers:

On the average, approximately how many hours per week during this school year have you used teacher aides?

______Rarely used aides

______Between 2 and 4 hours

______Between 5 and 10 hours

______More than 10 hours

The first comparisons of importance are those reflecting on hypothesis (1), between responses of returning teachers in Spring, 1969 compared to Spring, 1968. Table VII presents the results of applying related 't' tests to the overall data and to groupings on the variables of sex, semester hours of college, years of teaching experience, time usage of aides, type of aide usage, and MTAI score.

TABLE VII

MEAN DIFFERENCES BETWEEN SPRING 1968 AND SPRING 1969

		N	Mean Difference	Related 't'
1.	Overall	53	-0.113	-2.576*
2.	Male	21	-0.238	-1.156
3.	Female	32	-0.188	-1.791
4.	$<$130 Sem. Hrs.	15	-0.600	-2.806*
5.	131-155 Sem. Hrs.	25	-0.200	-1.414
6.	155+ Sem. Hrs.	13	0.0	0.0
7.	$<$5 Yrs. Exp.	24	-0.542	-3.186*
8.	5-9 Yrs. Exp.	13	-0.154	-0.617
9.	10+ Yrs. Exp.	16	-0.063	-0.565
10.	Rarely	7	-0.857	-2.121
11.	2-4 Hrs./Week	26	-0.423	-3.353*
12.	5-9 Hrs./Week	15	0.067	0.367
13.	Clerical	32	-0.083	-0.321
14.	Instructional	12	-0.217	-1.155
15.	$< \frac{1}{2}$ SD $< \bar{X}$ MTAI	23	-0.217	-1.155
16.	$< \frac{1}{2}$ SD $\bar{X} > \frac{1}{2}$ SD	20	-0.550	-3.240*
17.	$> \frac{1}{2}$ SD $> \bar{X}$ MTAI	10	0.0	0.0

* Significant at or beyond the 0.05 level.
Negative values indicate Spring, 1969 means are higher than Spring, 1968.
Positive sign (or lack of sign) indicates the opposite is true.

The first finding of note in Table VII is that for every variable considered but (6), 155+ semester hours (17), greater than one-half standard deviation above MTAI Mean (12), and those reporting over five hours of aide usage in 1968, the mean time usage reported by the teachers within the groups increased. Only for the last of these three variables did the mean time usage decrease. This revealed that the teachers who used aides considerably during 1968 were using them less during 1969, possibly because other teachers were using more of the aides' time.

For the overall comparison, this difference was significant. It was also significant for teachers reporting less than 130 semester hours, less than five years experience, two to four hours of aide usage in 1968, clerical users in

1968 and those within one-half standard deviation of the MTAI mean. Other noticeable findings were:

1. Males changed more than females.
2. As teachers reported more semester hours of college, their change in time usage of aides decreased.
3. The same results as described in 2 occurred as teaching experience increased.
4. The less teachers reported using aides in 1968, the greater was their change in 1969.
5. Clerical users changed more than instructional users.
6. Those near the MTAI mean changed more than those at either extremes.

Considering the number of significant comparisons and the pattern of change favoring the 1969 data, hypothesis (1) must be rejected. The alternative hypothesis, that teachers utilized aides to an even greater extent during 1969, is proposed.

Since this form was administered only in Spring, 1969 the only comparison possible with respect to hypothesis (2) was that of the Spring, 1968 teachers and the new teachers of Spring, 1969. The data for this comparison is shown in Table VIII.

TABLE VIII

COMPARISON OF NEW TEACHERS TO 1968 TEACHERS ON AVERAGE TIME USAGE OF AIDES PER WEEK

	Total	Rarely		2 - 4		5 - 9		10+		Mean
	N	N	%	N	%	N	%	N	%	
New teachers	30	4	13.3	12	40.0	8	26.7	6	20.0	2.533
1968 Teachers	53	7	13.2	26	49.1	15	28.3	3	5.7	2.275

Chi Square Value is 3.929

Close agreement exists between the 1968 teachers and 1969 new teachers. Only for the group of teachers who reported utilizing aides more than ten hours per week was there a difference of more than ten percentage points. The difference in means is mostly the result of the difference in this category. The chi square test indicated no significant difference for this comparison; thus, hypothesis (2) must be retained.

The final section of this report concerns the reported functions which aides perform. The data for hypothesis (3), no differences will be found in frequency of the various types of aide usage from Spring, 1968 to Spring, 1969 is presented in Table IX.

TABLE IX

FUNCTIONS AIDES PERFORM
COMPARISON OF MATCHED DATA FOR SPRING 1968 AND SPRING 1969 AND NEW TEACHERS

	Spring 1968		Spring 1969		New Teachers Spring 1969	
	N	%	N	%	N	%
1	10	18.9	12	22.6	14	46.7
2	23	43.4	26	49.1	9	30.0
3	6	11.3	12	22.6	8	26.7
4	8	15.1	17	32.1	6	20.0
5	11	20.8	16	30.2	12	40.0
6	10	18.9	24	45.3	14	46.7
7	16	30.2	21	39.6	7	23.3
8	31	58.5	38	71.7	14	46.7
9	47	88.7	50	94.3	29	96.7
10	30	56.6	32	60.4	20	66.7
11	2	3.8	3	5.7	1	3.3
12	24	45.3	20	37.7	17	56.7
13	8	15.1	15	28.3	10	33.3
14	13	24.5	19	35.8	7	23.3
15	5	9.4	5	9.4	3	10.0
16	7	13.2	17	32.1	12	40.0
17	0	0.0	5	9.4	2	6.7
18	33	62.3	29	54.7	21	70.0
19	9	17.0	5	9.4	9	30.0
20	11	20.8	7	13.2	6	20.0
21	22	41.5	25	47.2	11	36.7
22	29	54.7	33	62.3	23	76.7
23	16	30.2	21	39.6	8	26.7
24	27	50.9	30	56.6	21	70.0

Chi square value is 18.450

The chi square value for this comparison was not significant at 22 degrees of freedom (response choice 17 was not included in this comparison in line with Siegel's recommendation that no cell with zero frequencies be used). It is apparent that a consistently greater percentage of the teachers checked most of the items in Spring, 1968. This is further shown by the mean number of responses checked by the teachers which was 7.51 in 1969 and 9.09 in 1969. A decrease in the percentage of teachers responding from 1968 to 1969 occurred in only the following items: (12), in charge of groups; (18), work with small groups or individuals; (19), supervise recess activities of students; and (20), give directions necessary to learn games.

Items with greater than ten percentage points increase in responses were: (3), collect lunch money and/or keep records; (4), inventory books and/or supplies; (6), keep class lists; (8), work with visual aids equipment; (13), handle routine interruptions; (14), assist teachers in seeing that in-class assignments are completed, and (16), pass out routine notices to students. The evidence presented indicates that hypothesis (3) probably should be rejected, but more study should be made.

Data for new teachers are also shown in Table IX. Unexpectedly, the new teachers reported a greater average number of uses of the aides, 9.47, than either Spring, 1968 or Spring, 1969 teachers. This results in a greater percentage of responses to a number of the items.

The final comparison presented in the percentage of responses by schools to the various functions aides perform is shown in Table X.

TABLE X

FUNCTIONS AIDES PERFORM - COMPARISON OF ALL DATA FOR SPRING 1969

	School 1		School 2		School 3		Most frequent		
	N	%	N	%	N	%	1	2	3
1	19	54.3	4	30.8	3	7.5	-	-	-
2	14	40.0	6	46.2	15	37.5	2	-	-
3	12	34.3	2	15.4	6	15.0	-	1	-
4	10	28.6	2	15.4	12	30.0	-	-	-
5	18	51.4	3	23.1	7	17.5	-	1	-
6	20	57.1	6	46.2	12	30.0	-	-	-
7	16	45.7	5	38.5	7	17.5	-	-	-
8	30	85.7	6	46.2	18	45.0	1	-	1
9	33	94.3	13	100.0	36	90.0	14	3	24
10	20	57.1	10	76.9	24	60.0	4	-	7
11	3	8.6	1	7.7	0	0.0	-	-	-
12	22	62.9	7	53.8	9	22.5	-	-	-
13	18	51.4	3	23.1	5	12.5	-	-	-
14	12	34.3	6	46.2	8	20.0	1	-	-
15	3	8.6	1	7.7	5	12.5	-	-	-
16	22	62.9	1	7.7	6	15.0	-	-	-
17	4	11.4	1	7.7	2	5.0	-	-	-
18	31	88.6	13	100.0	8	20.0	9	7	-
19	12	34.3	4	30.8	0	0.0	2	-	-
20	9	25.7	1	7.7	3	7.5	-	-	-
21	22	62.9	9	69.2	7	17.5	-	-	-
22	23	65.7	11	84.6	24	60.0	-	-	-
23	11	31.4	6	46.2	12	30.0	-	-	-
24	24	68.6	10	76.9	19	47.5	-	-	1

It is evident that great variability exists among schools and the functions aides perform. Overall, the mean number of items checked by respondents was 11.66 for school 1, 10.08 for school 2, and 6.20 for school 3. School 3 reported a consistently lower percentage of teachers using every function but (4), inventory books and/or supplies, and (15) assistant librarian during library period. Even between schools 1 and 2, a number of major differences exists in responses to the items. Those exceeding 20 percent were (1), keep attendance reports; (5) make out supply requisitions; (8) work with visual aids equipment; (13), handle routine interruptions; and (16), pass out routine notices to students.

Variability also existed among schools in the function indicated by the teachers for which they most used the aides. For schools 1 and 3, the most often mentioned choice was (9), prepare and/or run duplicator materials, but for school 2, the first choice was (18), work with small groups or individuals. Working with small groups was also frequently mentioned by teachers from school 1, but never from school 3. Teachers from school 1 and 3 also frequently mentioned (10), correct objective written work, but never from school 2.

Summary and Conclusions

Teacher time utilization for six activities as measured by the MTAI instrument did not change significantly from Spring, 1968 to Spring, 1969. It was noted that peak usage or lack of usage of the six activities aides for more hours per week also reported devoting less time to direct instruction and miscellaneous, while more time to related instruction and supervisory activities in Spring, 1969. This result was the reverse of what occurred in Spring of 1968 compared to Fall of 1967 because of the peak effect noted previously for the Spring, 1968 data. With respect to new teachers it was found that their change from Fall to Spring paralled the change which occurred for the first project year (Fall 1967 to Spring 1968).

The Usage of Teacher Aide form produced more noteable changes from Spring, 1968 to Spring, 1969. For nearly all comparisons the mean time usage reported by teachers increased. This increase was significant for the overall and several other comparisons. It appeared that the less experienced teachers with fewer semester hours of college were the most open to change in time usage of aides. Also, males and those near the MTAI mean were more open to such change. There was little difference noted between new teachers compared to 1968 teachers.

Concerning the functions aides perform, a consistently greater percentage of teachers responded to nearly all the functions in Spring,1969 compared to Spring,1968. This change appeared even between schools. Great variability also existed from school to school in terms of percentage of teachers responding to each function and the mean number of responses per teacher. This variability between teachers and schools was further apparent when the different responses to the request for most frequently utilized function were identified.

Recommendations

It is recommended that further study be made of the relationship of clerical versus instructional functions aides performed to see how they compare to teacher reported time usage of aides. It is further suggested that the aide reported time uses by teachers be compared to the teacher reports in terms of total length of time and in terms of functions performed by aides.

USAGE OF TEACHER AIDES

NAME____

1. On the average, approximately how many hours per week during this school year have you used teachher aides?

______ Rarely used aides
______ Between 2 and 4 hours
______ Between 5 and 10 hours
______ More than 10 hours

2. Check any of the following activities that you consistently used an aide to assist you. Please be sure to write in activities not listed.

______ 1. Keep attendance reports.
______ 2. Copy grades on report cards and/or into teacher's gradebook.
______ 3. Collect lunch money and/or keep lunch records.
______ 4. Inventory books and/or supplies.
______ 5. Make out supply requisitions and/or get them from supply room.
______ 6. Keep class lists.
______ 7. Collect, file and/or return children's work.
______ 8. Work with visual aids equipment.
______ 9. Prepare and/or run duplicator materials and/or transparencies.
______ 10. Correct objective written work such as tests, workbooks, etc.
______ 11. Prepare schedule of activities for recess.
______ 12. In charge of groups to and from cafeteria, library, and playground.
______ 13. Handle routine interruptions such as messages, phone calls, etc.
______ 14. Assist teacher in seeing that in-class assignments are completed.
______ 15. Assist librarian during library periods.
______ 16. Pass out routine notices for students to take home, etc.
______ 17. Handle routine opening exercises such as pledge of allegiance, etc.
______ 18. Work with small groups or individuals to reinforce teacher's instructions.
______ 19. Supervise recess activities of students.
______ 20. Give directions necessary for students to learn games.
______ 21. Assist teacher in such activities as reading stories, dictation of spelling words, musical accompaniement, and arithmetic and word drill games.
______ 22. Prepare classroom displays.
______ 23. Enter information on chalkboard and/or make charts.
______ 24. Obtain pictures, books, and/or make charts.

OTHER ACTIVITIES

______ 25.
______ 26.
______ 27.
______ 28.

3. Please write in the space below the number of the activity in the above list you most used the assistance of a teacher aide.

______ Number of the activity in the above list you most used an aide's assistance.

SECTION K

OVERVIEW OF PUPIL STUDY

In the initial report, an attempt was made to measure the cognitive gains in students due to the effort of aides. This effort did not prove to be productive.

The emphasis in the second year of the study was to make an exploratory study into possible affective domain changes in students which could be ascribed to classroom conditions which would be influenced by the presence of aides. The following section reports the results of this exploratory study:

L The Semantic Differential Study . . . . Dr. Clyde Morris

SECTION L

THE SEMANTIC DIFFERENTIAL STUDY

Objectives

The Semantic Differential Test was designed to collect data which would reflect pupils' attitudes towards five conceptual elements including 1) Myself, 2) Teacher Aide, 3) Other Pupils, 4) I Think the Aide... and 5) School. Pupil responses to each of the items included in the five different concepts were recorded on a seven-point scale which varied from a positive to a negative dimension.

The intent of the instrument was to determine if differences could be discovered in the ways pupils responded - either positively or negatively - according to a number of variables including 1) MTAI scores of their teachers, 2) the amount of time their teachers used aides, 3) differences between schools, and 4) differences between grade levels.

Development of the Instrument

The Semantic Differential Test was developed on the basic framework established by Osgood, but was modified through the addition of several items which suggested inclusion on the basis of a field test conducted in April of 1969. The field test was given to pupils in the Twining School since they would not be included in other teacher aide studies. This test was subjected to factor analysis and factors were determined. Certain items which failed to factor, or did so with an extremely low loading, were eliminated. One pertinent factor was apparent for all concepts and in each case accounted for most of the variance. Two additional factors and one subfactor were found and have been included in the following report althouth their contribution to the loading was low.

The test was administered in April to 4th and 6th grade pupils at Kelly and Eielson Schools and to 8th graders at South Junior High School. Five-hundred seventy pupils took part; by grades they were as follows: 184 fourth graders, 158 sixth graders, and 228 eighth graders. A copy of the Semantic Differential Instrument may be found at the end of this section.

Statistical Procedures

A description of the statistics used to produce the following data is reported in Section A of this review. Factor analysis was applied to the data obtained from the spring administration. Only those loadings in excess of .38 were judged to be significant of the .05 level. Sheeffee's 'S' test was used to test for significant differences (.05 level) of selected variables between schools and analysis of variance was employed to test for significant relationships (.05 level) among grade levels, factor variables and other selected variables.

Hypotheses

The hypotheses tested in null form were:

1. There is no significant difference between schools on the sixteen factor scores.
2. There is no significant difference on the factor scores when students are grouped by the MTAI scores of their teachers.
3. There is no significant difference in the factor scores when students are grouped according to the amount of time their teachers reported they used aides.

4. There is no significant difference in the subfactor of "Other Pupils," common to all grades when students are grouped according to the MTAI scores of their teachers.
5. There is no significant difference in the subfactor of "Other Pupils," common to all grades, when students are grouped according to the amount of time their teachers reported they used aides.
6. There is no significant difference in the sixteen factor scores when students are grouped by grade according to upper, middle, and lower levels on the concept "Myself."

Results

Tables I - V present the items included in the factors and thr respective loading for each of the five concepts included in the Semantic Differential Instrument for grades 4, 6 and 8.

The tables indicate the items of each concept which factored for each grade level. Factor 1 covered the great preponderance of the variance, but factors 2 and 3 are included. The asterisk items under factor 1 of the concept "Myself" form the subfactor.

Table VI presents the comparisons by schools of factor scores for grade 4 students. The only significant comparisons were for factor 3 or the concept "Myself," factors 1 and 2 of "I Think Aides...," and factor 1 of "School." For the first two significant comparisons, Eielson students reported a higher mean than Kelly students and vice-versa for the latter two comparisons. The higher mean indicated a more positive attitude toward the continuums making up the items within the factors. Since the first factor score for each concept contributed the majority of the variance explained by

TABLE I

FACTOR LOADING FOR CONCEPT "MYSELF"

			GRADE LEVELS			
Factor One	Grade 4 Item Loading (34% of variance)		Grade 6 Item Loading (32% of variance)		Grade 8 Item Loading (29% of variance)	
	1	.58	1	.41	1	.58
	3	.66	3	.51		
	4	.70			4	.63
			6	.66	6	.48
	7	.43	7	.71		
	8	.63			8	.71
	9	.43			9	.78
			10	.57	10	.57
			11	.73		
	12	.40				
	13	.65			13	.45
			15	.71	15	.43
			17	.60	17	.70
	18	.69			18	.44
			20	.56	20	.54
	22	.50			22	.66
Factor Two	(6% of variance)		(8% of variance)		(9% of variance)	
					2	.54
					3	.68
					5	.61
					7	.66
	10	.47				
	11	.59			11	.54
			12	.40	12	.57
	Grade 4		Grade 6		Grade 8	
			13	.61		
					14	.53
	15	.77				
	17	.54				
	19	.66	19	.71	19	.52
	20	.71	20	.51		
	21	.41	21	.53	21	.50
	22	.44	22	.64		
	23	.50	23	.67	23	.64

TABLE I - continued

Factor Three	(5% of variance)		(7% of variance)		(7% of variance)	
			1	.55		
			2	.48	2	.43
			3	.55		
			4	.63		
	5	.60				
	6	.68				
	7	.41	8	.59		
			9	.64		
					11	.45
	12	.47	12	.46		
	14	.40	14	.61		
					15	.51
	16	.40	16	.41	16	.71
			18	.56	18	.47

TABLE II

FACTOR LOADING FOR CONCEPT "OTHER PUPILS"

GRADE LEVELS

	Grade 4		Grade 6		Grade 8	
Factor One	Item Loading (43% of variance)		Item Loading (37% of variance)		Item Loading (40% of variance)	
			1	.51		
			2	.60	2	.60
	3	.42			4	.65
	6 *	.54	6	.41	6	.66
	7 *	.51	7	.73	7	.68
			8	.54		
	9 *	.60	9	.56	9	.71
	10	.56			10	.52
	11	.66				
			12	.53	12	.68
			13	.49	13	.76
	14 *	.56	14	.53	14	.70
			15	.64	15	.61
			17	.61		
			18	.55	18	.65
	19 *	.42	19	.51	19	.42
	20	.61	20	.65		
	21	.71			21	.70
	22	.65			22	.61
Factor Two	(5% of variance)		(8% of variance)		(8% of variance)	
			1	.50	1	.75
			3	.69	3	.76
					5	.40
					8	.49
	15	.40				
	16	.79	16	.48	16	.65
			17	.48	17	.69
					19	.57
					20	.60
			22	.66		
			23	.56	23	.66

TABLE II - continued

Factor Three	(6% of variance)		(5% of variance)		(6% of variance)	
			1	.39		
	2	.61				
			4	.51		
	5	.54	5	.58	5	.48
	6	.40	6	.61	5	.48
	7	.43				
	8	.73				
	9	.48	9	.42		
			10	.54		
			11	.63	11	.81
	12	.47	12	.56	12	.42
	13	.81	13	.62		
			14	.45		
	18	.41				
			19	.46		
			21	.70		
			23	.46		

Subfactor - (*) asterisk denotes items under Factor One from the subfactor.

TABLE III

FACTOR LOADING FOR CONCEPT "SCHOOL"

	GRADE LEVELS					
	Grade 4 Item	Loading	Grade 6 Item	Loading	Grade 8 Item	Loading
Factor One	(50% of variance)		(43% of variance)		(49% of variance)	
	1	.74			1	.84
	2	.46	2	.63		
	3	.60	3	.69	3	.74
			4	.87		
	5	.71	5	.75	5	.80
	6	.44	6	.68		
	7	.65	7	.53	7	.79
			8	.82		
	9	.81			9	.88
			10	.51		
	12	.61	12	.47	12	.76
	13	.79			13	.84
	14	.78			14	.87
Factor Two	(9% of variance)		(12% of variance)		(19% of variance)	
			1	.79		
	2	.66	2	.45	2	.79
	3	.45				
	4	.84			4	.86
	5	.44				
	6	.52	6	.40	6	.75
			7	.47		
	8	.80			8	.87
			9	.72		
	10	.67			10	.81
					11	.51
	12	.40	12	.38		
			13	.76		
			14	.75		

TABLE IV

FACTOR LOADINGS FOR CONCEPT "TEACHER AIDE"

	GRADE LEVELS					
	Grade 4 Item	Loading	Grade 6 Item	Loading	Grade 8 Item	Loading
Factor One	(52% of variance)		(42% of variance)		(46% of variance)	
	1	.75			1	.46
	2	.81	2	.57	2	.64
	3	.67	3	.49		
	6	.51	6	.68	6	.68
	7	.79	7	.43		
			8	.58		
	9	.52	9	.60	9	.63
	10	.46	10	.42		
	11	.65	11	.73	11	.49
	12	.50				
	13	.46				
	16	.63	16	.78	16	.55
	17	.57	17	.48	17	.74
	18	.54	18	.67	18	.40
	19	.69			19	.65
	21	.40	21	.47		
	22	.65				
	24	.62			24	.42
Factor Two	(5% of variance)		(8% of variance)		(10% of variance)	
					2	.42
	4				4	.67
			5	.41	5	.69
			8	.53		
					9	.41
	10				10	.43
					11	.60
	13		13	.66		
	14		14	.65		
	15					
	17		18	.38		
					19	.41
			20	.68	20	.55
			21	.55	21	.49
	22		22	.43		
			23	.69		
			24	.67		

TABLE IV - continued

Factor Three	(5% of variance)		(6% of variance)		(5% of variance)	
			1	.44	1	.62
			2	.58		
			3	.60	3	.65
			4	.70		
	5					
			7	.52	7	.68
	8				8	.77
			10	.64	10	.67
	12		12	.68	12	.73
					13	.77
			15	.60	14	.75
			17	.42	16	.63
			19	.61	18	.64
			22	.61	22	.71
					23	.67
					24	.70

TABLE V

FACTOR LOADING FOR CONCEPT "I THINK THE TEACHER AIDE"

	GRADE LEVELS					
Factor One	Grade 4 Item Loading (39% of variance)		Grade 6 Item Loading (32% of variance)		Grade 8 Item Loading (29% of variance)	
	1	.65	1	.80		
	2	.70	2	.54	2	.67
	3	.63			3	.66
	4	.58				
	5	.45				
	6	.82	6	.60	6	.77
					7	.43
	8	.42				
	10	.68			10	.71
	11	.50				
	12	.65	12	.72	12	.68
Factor Two	(8% of variance)		(10% of variance)		(12% of variance)	
					1	.53
			2	.41		
			3	.64		
			4	.69	4	.65
	5	.47	5	.72	5	.66
					7	.40
	8	.51	8	.45	8	.55
			10	.70		
	11	.40	11	.60	11	.65
	13	.76				
Factor Three	(8% of variance)		(9% of variance)		(10% of variance)	
	3	.40				
	7	.54	7	.81	7	.53
	9	.82	9	.47	9	.83
					13	.45

the factors, particularly for the concepts of "I Think Aides..." and "School," the null hypothesis must be rejected for those items where there was significance.

TABLE VI

COMPARISONS OF 't' TESTS OF FACTORS FOR GRADE 4 STUDENTS AT KELLY AND EIELSON SCHOOLS

			Means for Schools		Significance
Concept	Factor	't'	Eielson	Kelly	at .05
			(N=154)	(N-30)	
Myself	1	1.710	25.013	26.600	N.S.
	2	0.545	34.864	34.433	N.S.
	3	2.251	29.468	27.533	S.
Teacher Aide	1	1.343	61.753	63.300	N.S.
	2	0.933	24.325	25.100	N.S.
	3	1.783	9.071	9.900	N.S.
Other Pupils	1	0.075	39.084	39.000	N.S.
	2	0.325	7.765	7.533	N.S.
	3	0.063	28.753	25.667	N.S.
	Subfactor	0.620	15.636	15.067	N.S.
I Think Aides	1	1.913	39.084	37.667	S.
	2	2.521	9.286	11.400	S.
	3	1.619	13.818	12.867	N.S.
School	1	2.168	29.279	33.200	S.
	2	1.228	34.247	32.867	N.S.

Table VII presents the comparisons, by schools, of factor scores for grade 6 students. Significance was found for the three major factors of the concept "Other Pupils" and its subfactor. In factor 1, 3 and the subfactor Eielson students scored significantly higher than did the Kelly students, while Kelly students scored significantly higher on factor 2 than did Eielson students. Factor 1, however, as in all cases, bore the greatest proportion of the variance. But it may be generally suggested that grade 6 Eielson students exhibited a more positive attitude towards other pupils than was true of Kelly grade 6 students. The hypothesis, therefore, must be rejected for those items where significance was established.

TABLE VII

COMPARISON OF 't' TESTS OF FACTORS FOR GRADE 6
STUDENTS AT KELLY AND EIELSON SCHOOLS

Concept	Factor	't'	Means for Schools Eielson (N=102)	 Kelly (N=56)	Significance at .05
Myself	1	0.306	26.598	26.839	N.S.
	2	0.346	24.843	25.018	N.S.
	3	0.530	38.755	39.089	N.S.
Teacher Aide	1	0.424	47.382	47.625	N.S.
	2	0.019	30.608	30.589	N.S.
	3	0.804	40.500	39.929	N.S.
Other Pupils	1	2.388	51.745	49.536	S.
	2	2.335	29.000	30.679	S.
	3	2.206	47.941	45.696	S.
	Subjactor	3.352	16.716	14.893	S.
I Think Aides	1	1.838	18.794	19.911	N.S.
	2	0.954	25.843	26.375	N.S.
	3	1.142	8.235	8.607	N.S.
School	1	0.918	36.324	36.946	N.S.
	2	1.516	25.922	24.699	N.S.

Table VIII compares the factor scores of grade 4 pupils according to teacher scores above or below the mean for the MTAI. Only on factor 2 of the concept "Myself" was significance established. The hypothesis is retained, therefore, in all items except that single example.

TABLE VIII

COMPARISON OF 't' TESTS FOR FACTORS FOR GRADE 4 STUDENTS BY TEACHERS ABOVE AND BELOW THE MEAN OF THE MTAI

Concept	Factor	't'	$\overline{X}$ MTAI (N=120)	$\overline{X}$ (N=64)	Significance at .05
Myself	1	1.516	24.892	25.984	N.S.
	2	1.928	35.200	34.031	S.
	3	0.026	24.158	29.141	N.S.
Teacher Aide	1	0.766	61.767	62.453	N.S.
	2	1.084	24.208	24.906	N.S.
	3	1.511	9.017	9.563	N.S.
Other Pupils	1	1.233	39.442	38.375	N.S.
	2	1.330	7.808	7.359	N.S.
	3	0.496	28.567	29.063	N.S.
	Subfactor	1.377	15.883	14.900	N.S.
I Think Aides	1	1.370	39.200	38.203	N.S.
	2	1.223	9.350	10.156	N.S.
	3	1.706	13.933	13.156	N.S.
School	1	0.249	30.042	99.688	N.S.
	2	0.263	33.942	34.172	N.S.

Table IX shows the comparison of factor scores for grade 6 students, by schools, according to teachers' scores above or below the mean for the MTAI. Eielson students scored significantly higher on factors 1 and 3 and the subfactor for the concept "Other Pupils," while grade 6 students at Kelly School scored significantly higher on factor 2 of "Other Pupils" than did Eielson students. The hypothesis, therefore, must be rejected for those items where significance was found.

TABLE IX

COMPARISON OF 't' TESTS FOR FACTORS FOR GRADE 6 STUDENTS BY TEACHERS ABOVE AND BELOW THE MEAN ON MTAI

Concept	Factor	't'	$\overline{X}$ MTAI (N=102)	$\overline{X}$ (N=56)	Significance at .05
Myself	1	0.306	26.598	26.839	N.S.
	2	0.346	24.843	25.018	N.S.
	3	0.530	38.755	39.089	N.S.
Teacher Aide	1	0.424	47.382	47.625	N.S.
	2	0.019	30.608	30.589	N.S.
	3	0.804	40.500	39.929	N.S.
Other Pupils	1	2.385	51.745	49.536	S.
	2	2.335	29.000	30.679	S.
	3	2.206	47.941	45.696	S.
	Subfactor	3.352	16.716	14.893	S.
I Think Aides	1	1.939	18.794	19.911	N.S.
	2	0.954	25.843	26.375	N.S.
	3	1.142	18.235	18.607	N.S.
School	1	0.918	36.324	36.946	N.S.
	2	1.516	25.922	24.679	N.S.

Table X compares the factor scores for grade 8 students at the two schools when grouped according to MTAI scores (either above the mean or below the mean) of their teachers.

TABLE X

't' TEST FOR COMPARISON OF FACTORS FOR GRADE 8 STUDENTS BY TEACHERS ABOVE AND BELOW THE MEANS FOR MTAI

Concept	Factor	't'	$\bar{X}$ MTAI (N=197)	$\bar{X}$ (N=31)	Significance at .05
Myself	1	1.921	26.472	28.419	S.
	2	0.873	51.274	49.806	N.S.
	3	0.498	20.320	19.968	N.S.
Teacher Aide	1	0.650	42.594	42.000	N.S.
	2	1.349	44.802	42.581	N.S.
	3	2.030	33.980	40.419	S.
Other Pupils	1	2.318	44.188	50.129	S.
	2	4.232	45.391	37.419	S.
	3	1.136	11.330	10.290	N.S.
	Subfactor	0.666	16.665	17.194	N.S.
I Think Aides	1	0.818	27.716	28.871	N.S.
	2	0.622	17.457	16.774	N.S.
	3	0.870	11.416	11.903	N.S.
School	1	1.964	24.117	29.296	S.
	2	1.251	26.772	24.355	N.S.

On factor 1 of the concept "Myself," factor 3 of Teacher Aide, factor 1 of "Other Pupils" and factor 1 of "School," significance was found. Grade 4 students at Eielson revealed a more positive attitude toward factor 2 in "Other Pupils."

On factor 1 of "Myself," factor 3 of Teacher Aides, factor 1 of "Other "Pupils" and factor 1 of "Schools," Kelly students revealed a more positive attitude than did Eielson students. The hypothesis must be rejected for those factors for which significance was apparent.

Table XI compares 't' tests for factors for grade 4 pupils according to teacher use of teacher aides. No significant differences were found for any of the factors and the subfactor. Apparently, there is little influence on grade 4 pupils as to whether or not their teacher utilized aides more or less than five hours per week. Thus, hypothesis 3 must be accepted.

TABLE XI

COMPARISON OF 't' TESTS FOR FACTORS FOR GRADE 4 STUDENTS BY TEACHERS REPORTING AIDE USAGE OF LESS THAN OR GREATER THAN FIVE HOURS PER WEEK

Concept	Factor	't'	5	Hours 5	Significance at .05
			(N=59)	(N=125)	
Myself	1	1.525	26.034	24.912	N.S.
	2	0.272	34.678	34.848	N.S.
	3	1.566	28.424	29.496	N.S.
Teacher Aide	1	1.112	62.695	61.680	N.S.
	2	0.090	24.492	24.432	N.S.
	3	1.476	9.576	9.032	N.S.
Other Pupils	1	0.672	39.475	38.880	N.S.
	2	0.107	7.627	7.664	N.S.
	3	0.941	28.051	29.064	N.S.
	Subfactor	0.238	15.661	15.488	N.S.
I Think Aides	1	0.480	38.610	38.968	N.S.
	2	0.993	10.085	9.416	N.S.
	3	1.075	13.322	13.824	N.S.
School	1	1.856	31.729	29.064	N.S.
	2	1.299	33.237	34.392	N.S.

Table XII compares 't' tests for factors for grade 6 pupils according to teacher use of aides. Significance was found for factor 1, "Other Pupils," indicating that pupils of teachers using aides less than 5 hours per week scored higher than pupils of teachers who utilized aides more than 5 hours per week. Significance was evident also for factor 3 and the subfactor of this concept with the same general results: pupils of teachers using aides less than 5 hours per week scored higher on these factors than did pupils of teachers using aides more than 5 hours per week

TABLE XII

COMPARISON OF 't' TESTS FOR FACTORS FOR GRADE 6 STUDENTS BY TEACHERS REPORTING AIDE USAGE OF LESS THAN OR GREATER THAN FIVE HOURS PER WEEK

Concept	Factor	't'	5 Hours (N=67)	5 (N=91)	Significance at .05
Myself	1	0.367	26.522	26.802	N.S.
	2	0.511	24.761	25.011	N.S.
	3	1.087	38.493	39.154	N.S.
Teacher Aide	1	0.626	47.269	47.615	N.S.
	2	0.512	30.881	30.396	N.S.
	3	0.115	40.343	40.264	N.S.
Other Pupils	1	2.509	52.254	50.011	S.
	2	1.770	28.881	30.121	N.S.
	3	3.360	49.015	45.769	S.
	Subfactor	3.207	17.045	15.352	S.
I Think Aides	1	0.687	18.955	19.363	N.S.
	2	0.725	25.806	26.198	N.S.
	3	1.956	8.015	8.626	S.
School	1	0.612	36.776	36.374	N.S.
	2	1.395	26.119	25.011	N.S.

Since all eighth grade teachers reported using aides less than 5 hours a week, it was not possible to make a comparison on amount of time aides were used on the same basis as was used for 4th and 6th grade pupils.

The comparison for the subfactor of "Other Pupils" between grade levels and MTAI scores is shown in Table XIII. The column comparison for grade levels was significant. It can be seen that there is a tendency for the mean response to increase as grade level increases. The row comparison for less than or greater than the MTAI mean was also highly significant. It can be seen that for fourth and sixth grade pupils, those whose teachers scored below the MTAI mean had larger scores on the subfactor while the reverse was true for grade eight students. The two-way interaction term was non-significant, thus hypothesis 4 must be accepted, however, difference does exist when taking into account both grade level and MTAI scores.

TABLE XIII

TWO-WAY COMPARISON OF STUDENTS BY GRADE LEVELS AND BY THEIR TEACHER'S SCORE ON THE MTAI FOR THE SUBFACTOR OF OTHER PUPILS

$\overline{X}$ on MTAI			$\overline{X}$ on MTAI		
4th	6th	8th	4th	6th	8th
15.88	16.88	16.57	14.91	14.89	17.19

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Grade Levels	2	125.94	62.97	3.82*
MTAI Scores	1	130.06	130.06	7.89*
Cells	5	321.25		
Grade X MTAI	2	65.25	32.63	1.98 N.S.
Within Cells	564	9301.94	16.49	
Total	569	9623.19		

* Significant at or beyond the 0.05 level

The same comparison as presented in Table XIII was also made in Table XIV, but substituting time usage of aides for MTAI scores. Since all grade eight teachers reported using aides for less than 5 hours per week, this grade level had to be dropped from the comparison. The column comparison for grade level was non-significant, but the row comparison for time usage of aides was significant. It can be seen that students whose teachers reported fewer hours of aide usage had higher mean scores on the subfactor for each grade level. The interaction term between the two variables was non-significant; thus hypothesis 5 must be accepted.

TABLE XIV

TWO-WAY COMPARISON OF STUDENTS BY GRADE LEVELS AND BY THE AMOUNT OF TIME PER WEEK THEIR TEACHER USES AIDES FOR THE SUBFACTOR OF OTHER PUPILS

5 Hours Usage of Aides		5 Hours Usage of Aides	
4th	6th	4th	6th
15.66	17.22	15.49	15.40

Source of Variation	Degrees of Freedom	Sum of Square	Mean Square	F
Grade Levels	1	35.56	35.56	2.14 N.S.
Usage of Aides	1	88.31	88.31	5.32 *
Cells	3	165.75		
Grade X Usage	1	41.88	41.88	2.52 N.S.
Within Cells	339	5623.81	16.59	
Total	342	5789.56		

* Significant at or beyond the 0.05 level

Table XV presents the comparisons of the upper, middle and lower scoring fourth graders on the first factor of the concept, "Myself." The comparisons include the other fifteen factor or subfactor scores for the five concepts. This table reveals that significant differences exist between the three groups on all but three of the fifteen comparisons. For the factor one mean scores on the other four concepts, it is noted that the scores increased significantly (indicating a more positive attitude) as the means on factor one "Myself" increased for all but the concept, "I Think the Aides...," where a slight, but non-significant decrease accrued. Only for two of the twelve significant comparisons was it found that the mean score decreased as the group means on "Myself" increased. Hypothesis 6 must be rejected for all significant comparisons.

TABLE XV

COMPARISON OF HIGH AND LOW SCORING 4th GRADERS ON THE FIRST FACTOR OF THE CONCEPT MYSELF

		Group Means				
Concept	Factor	Lower	Middle	Upper	F	
		(N=23)	(N=126)	(N=35)		
Myself	2	33.0	35.1	34.8	2.98	N.S.
	3	31.0	24.3	27.4	5.11	*
Teacher Aide	1	57.3	60.7	69.9	84.11	*
	2	21.8	23.8	28.7	33.76	*
	3	8.5	8.8	11.1	16.50	*
Other Pupils	1	35.4	39.1	40.8	4.47	*
	2	7.5	7.6	7.9	0.23	N.S.
	3	24.2	29.0	30.7	7.23	*
	Subfactor	13.4	15.5	17.2	5.02	*
I Think Aides	1	40.0	38.8	38.4	0.93	N.S.
	2	8.7	9.0	12.7	12.29	*
	3	15.0	13.9	11.9	9.31	*
School	1	27.7	29.1	34.5	5.84	*
	2	36.4	34.3	31.4	6.30	*

* Significant at or beyond the 0.05 level

Table XVI presents the same data as Table XV, but for sixth graders. Basically the same patterns occurred for sixth grade as for fourth grade; twelve of fifteen comparisons were significant; two of the three non-significant comparisions were identical; ten of twelve significant comparisons found the upper scores on the first factor on "Myself" the upper scores for the significant comparisons. One different finding indicated a reversal of the two factors for school in which one changed in the same direction as "Myself" and the other the reverse. Factor 2 increased the same as "Myself" for sixth graders, while factor one did the same for fourth graders. Hypothesis 6 must be rejected for all significant comparisons.

TABLE XVI

COMPARISON OF HIGH AND LOW SCORING 6th GRADERS ON THE FIRST FACTOR OF THE CONCEPT MYSELF

Concept	Factor	Group Means Lower (N=32)	 Middle (N=99)	 Upper (N=28)	F	
Myself	2	24.4	24.8	25.0	0.36	N.S.
	3	37.4	39.3	39.9	4.13	*
Teacher	1	45.4	47.3	50.4	19.50	*
Aide	2	26.6	30.3	36.4	29.83	*
	3	37.2	40.4	44.8	46.33	*
Other						
Pupils	1	48.7	51.3	53.6	6.46	*
	2	29.3	29.6	28.5	0.63	N.S.
	3	45.4	47.2	50.9	8.72	*
	Subfactor	15.1	16.1	17.7	4.40	*
I Think	1	20.0	19.0	17.9	3.52	*
Aides	2	25.8	26.4	25.3	1.78	N.S.
	3	7.8	8.4	9.1	3.36	*
School	1	37.4	36.9	35.0	3.95	*
	2	24.3	25.3	28.2	4.81	*

* Significant at or beyond the 0.05 level

Table XVII presents for eighth graders the same comparisons as were shown in Tables XV and XVI. It was noted that eleven of the fifteen comparisons were significant, but that the non-significant comparisons were different from those occurring for fourth and sixth graders. There were four factor scores for which the means descreaed as the groups increased from "lower" to "higher." These included the factor two mean scores for the concepts, "Myself," "Teacher Aide," and "Other Pupils." The factor 1 scores for "Teacher Aide" were uninterpretable in that the middle group had the highest score. Hypothesis 6 must be rejected for all the significant comparisons.

TABLE XVII

COMPARISON OF HIGH AND LOW SCORING 8th GRADERS
ON THE FIRST FACTOR OF THE CONCEPT "MYSELF"

Concept	Factor	Group Means Lower (N=44)	 Middle (N=147)	 Upper (N=36)	F	
Myself	2	53.5	51.2	48.9	3.02	*
	3	20.2	20.0	20.4	0.34	N.S.
Teacher	1	42.5	43.0	40.3	5.10	*
Aide	2	48.5	45.4	36.3	26.90	*
	3	20.7	33.1	58.0	95.49	*
Other	1	38.1	43.8	57.2	25.92	*
Pupils	2	49.2	45.1	36.6	19.53	*
	3	10.3	11.0	10.6	1.80	N.S.
	Subfactor	14.8	16.4	19.8	17.25	*
I Think	1	31.7	28.2	23.1	15.75	*
Aide	2	13.9	17.2	21.5	21.20	*
	3	11.6	11.3	12.2	1.73	N.S.
School	1	21.3	23.3	34.6	12.7	*
	2	27.8	26.7	22.9	2.75	N.S.

* Significant at or beyond the 0.05 level

It is evident from these significant comparisons that further study of the relationships between the various concepts should be undertaken. It is further evident that differences between grade levels exist in several directions indicating that this variable must receive first priority in any future study. The results do seem to indicate more negative attitudes as the students became older in accordance with the writings that children progressively dislike school as they become older.

Conclusions

Data gathered by the Semantic Differential Test revealed a number of pertinent and significant relationships between factors of concepts tested.

It is apparent that differences exist between pupil attitudes toward the several concepts when comparing schools and grade levels. It is evident that there is a significant relationship between pupil attitudes and the degree to which their teachers utilized the service of aides.

There were significant differences in pupil scores when compared to their teachers' scores on the MTAI.

There appeared to be a change in attitude toward school as pupils progressed to higher grades.

Response to the instrument seemed to be highly consistent in that students who scored high on the concept "Myself" tended to score high on all other concepts. The reverse was true for low-scoring students.

The instrument revealed sufficiently significant data to warrant its further modification and use in another administration. Other variables which might be tested include pupil grades and I.Q. scores.

The test revision should probably eliminate factors which contributed little to the total variance. This would require rewriting the instrument to attempt to develop additional acceptable factors.

Please supply the following information:

Name:____

Male:_________________________Female:_________________________

Age:__________________________School:_________________________

Grade:____

INSTRUCTIONS

The purpose of this study is to find out what you think about some ideas. On the following pages, you are asked to tell what the different things mean to you. On each page you will find a set of scales to be marked in a way that will tell what you think the ideas mean to you.

Here is how you are to use these scales:

If you feel that the idea at the top of the page is very closely related to one end of the scale, you should place your check mark as follows:

fair__X__:_____:_____:_____:_____:_____:_____:bad
or
fair_____:_____:_____:_____:_____:_____:__X__:bad

If you feel that the idea is quite closely related to one or the other end of the scale (but not all the way), you should place your mark as follows:

pleasant_____:__X__:_____:_____:_____:_____:_____:unpleasant
or
pleasant_____:_____:_____:_____:_____:__X__:_____:unpleasant

If the concept seems only slightly related to one side as compared to the other side (but is not really in the middle), then you should check as follows:

active_____:_____:__X__:_____:_____:_____:_____:inactive
or
active_____:_____:_____:_____:__X__:_____:_____:inactive

If you consider the idea to be in the middle of the scale, or if the scale is not related to the idea, then you should place your check mark in the middle space.

severe_____:_____:_____:__X__:_____:_____:_____:lenient

IMPORTANT: (1) Place your check-marks in the middle of the spaces, not on the boundaries.

THIS NOT THIS
_____:_____:__X__:_____:_____:_____X_____:

(2) Be sure to check every scale for every idea--do not skip any.

(3) Never put more than one check-mark on a single scale.

Sometimes you may feel as though, you've had the same item before on the test. This will not be the case, so do not look back and forth through the items. Do not try to remember how you checked similar items earlier in the test. Work at fairly high speed through this test. Do not worry or puzzle over individual items. Please do not be careless, because we want your true feelings.

TEACHER AIDE(S)

Fair_____:_____:_____:_____:_____:_____:_____:Unfair

Bad_____:_____:_____:_____:_____:_____:_____:Good

Kind_____:_____:_____:_____:_____:_____:_____:Cruel

Old_____:_____:_____:_____:_____:_____:_____:Young

Loud_____:_____:_____:_____:_____:_____:_____:Quiet

Worthless_____:_____:_____:_____:_____:_____:_____:Valuable

Polite_____:_____:_____:_____:_____:_____:_____:Implite

Weak_____:_____:_____:_____:_____:_____:_____:Strong

Wise_____:_____:_____:_____:_____:_____:_____:Foolish

Sad_____:_____:_____:_____:_____:_____:_____:Happy

Pretty_____:_____:_____:_____:_____:_____:_____:Homely

Dishonest_____:_____:_____:_____:_____:_____:_____:Honest

Cheerful_____:_____:_____:_____:_____:_____:_____:Grouchy

Smart_____:_____:_____:_____:_____:_____:_____:Dull

Interesting_____:_____:_____:_____:_____:_____:_____:Uninteresting

Square _____:_____:_____:_____:_____:_____:_____:Cool

Untidy_____:_____:_____:_____:_____:_____:_____:Tidy

Helpful_____:_____:_____:_____:_____:_____:_____:Not helpful

Lazy_____:_____:_____:_____:_____:_____:_____:Energetic

Considerate_____:_____:_____:_____:_____:_____:_____:Inconsiderate

Unfriendly_____:_____:_____:_____:_____:_____:_____:Friendly

Attractive_____:_____:_____:_____:_____:_____:_____:Unattractive

Impatient_____:_____:_____:_____:_____:_____:_____:Patient

I THINK THE TEACHER AIDE

Likes me_____:_____:_____:_____:_____:_____:_____:Does not like me

Does not like the class_____:_____:_____:_____:_____:_____:_____:Likes the class

Helps me _____:_____:_____:_____:_____:_____:_____:Does not help me

Does not help the class_____:_____:_____:_____:_____:_____:_____:Helps the class

Helps the teacher _____:_____:_____:_____:_____:_____:_____:Does not help the teacher

Listens to me _____:_____:_____:_____:_____:_____:_____:Does not listen to me

Does everything _____:_____:_____:_____:_____:_____:_____:Keeps busy

Is in the room too much _____:_____:_____:_____:_____:_____:_____:Is not in the room enough

Likes his work _____:_____:_____:_____:_____:_____:_____:Does not like his work

Talks little _____:_____:_____:_____:_____:_____:_____:Talks alot

Answers questions _____:_____:_____:_____:_____:_____:_____:Does not answer questions

Knows very little _____:_____:_____:_____:_____:_____:_____:Knows alot

Scares me _____:_____:_____:_____:_____:_____:_____:Makes me feel at ease

Is always in a hurry _____:_____:_____:_____:_____:_____:_____:Is a slowpoke

MYSELF

pleasant _____:_____:_____:_____:_____:_____:_____ unpleasant

loud _____:_____:_____:_____:_____:_____:_____ quiet

bad _____:_____:_____:_____:_____:_____:_____ good

polite _____:_____:_____:_____:_____:_____:_____ impolite

femine _____:_____:_____:_____:_____:_____:_____ masculine

successful _____:_____:_____:_____:_____:_____:_____ unsuccessful

weak _____:_____:_____:_____:_____:_____:_____ strong

foolish _____:_____:_____:_____:_____:_____:_____ wise

kind _____:_____:_____:_____:_____:_____:_____ cruel

considerate _____:_____:_____:_____:_____:_____:_____ inconsiderate

useful _____:_____:_____:_____:_____:_____:_____ useless

worthless _____:_____:_____:_____:_____:_____:_____ valuable

influential _____:_____:_____:_____:_____:_____:_____ uninfluential

unfair _____:_____:_____:_____:_____:_____:_____ fair

attractive _____:_____:_____:_____:_____:_____:_____ unattractive

cheerful _____:_____:_____:_____:_____:_____:_____ grouchy

strong _____:_____:_____:_____:_____:_____:_____ weak

dishonest _____:_____:_____:_____:_____:_____:_____ honest

relaxed _____:_____:_____:_____:_____:_____:_____ tense

interesting _____:_____:_____:_____:_____:_____:_____ uninteresting

square _____:_____:_____:_____:_____:_____:_____ cool

tidy _____:_____:_____:_____:_____:_____:_____ untidy

helpful _____:_____:_____:_____:_____:_____:_____ not helpful

patient _____:_____:_____:_____:_____:_____:_____ impatient

sad _____:_____:_____:_____:_____:_____:_____ happy

important _____:_____:_____:_____:_____:_____:_____ unimportant

lazy _____:_____:_____:_____:_____:_____:_____ energetic

friendly _____:_____:_____:_____:_____:_____:_____ unfriendly

ungrateful _____:_____:_____:_____:_____:_____:_____ grateful

youthful _____:_____:_____:_____:_____:_____:_____ mature

OTHER PUPILS

unpleasant_____:_____:_____:_____:_____:_____:_____pleasant

quiet_____:_____:_____:_____:_____:_____:_____loud

good_____:_____:_____:_____:_____:_____:_____bad

impolite_____:_____:_____:_____:_____:_____:_____polite

masculine_____:_____:_____:_____:_____:_____:_____femine

unsuccessful_____:_____:_____:_____:_____:_____:_____successful

strong_____:_____:_____:_____:_____:_____:_____weak

wise_____:_____:_____:_____:_____:_____:_____foolish

cruel_____:_____:_____:_____:_____:_____:_____kind

inconsiderate_____:_____:_____:_____:_____:_____:_____considerate

useless_____:_____:_____:_____:_____:_____:_____useful

valuable_____:_____:_____:_____:_____:_____:_____worthless

uninfluential_____:_____:_____:_____:_____:_____:_____influential

fair_____:_____:_____:_____:_____:_____:_____unfair

unattractive_____:_____:_____:_____:_____:_____:_____attractive

grouchy_____:_____:_____:_____:_____:_____:_____cheerful

weak_____:_____:_____:_____:_____:_____:_____strong

honest_____:_____:_____:_____:_____:_____:_____dishonest

tense_____:_____:_____:_____:_____:_____:_____relaxed

uninteresting_____:_____:_____:_____:_____:_____:_____interesting

cool_____:_____:_____:_____:_____:_____:_____square

untidy_____:_____:_____:_____:_____:_____:_____tidy

not helpful_____:_____:_____:_____:_____:_____:_____helpful

impatient_____:_____:_____:_____:_____:_____:_____patient

happy_____:_____:_____:_____:_____:_____:_____sad

unimportant_____:_____:_____:_____:_____:_____:_____important

energetic_____:_____:_____:_____:_____:_____:_____lazy

unfriendly_____:_____:_____:_____:_____:_____:_____friendly

grateful_____:_____:_____:_____:_____:_____:_____ungrateful

mature_____:_____:_____:_____:_____:_____:_____youthful

SCHOOL

pleasant____:____:____:____:____:____:____:unpleasant
bad____:____:____:____:____:____:____:good
meaningful____:____:____:____:____:____:____:meaningless
useless____:____:____:____:____:____:____:useful
valuable____:____:____:____:____:____:____:worthless
unfair____:____:____:____:____:____:____:fair
honest____:____:____:____:____:____:____:dishonest
unimportant____:____:____:____:____:____:____:important
kind____:____:____:____:____:____:____:cruel
negative____:____:____:____:____:____:____:positive